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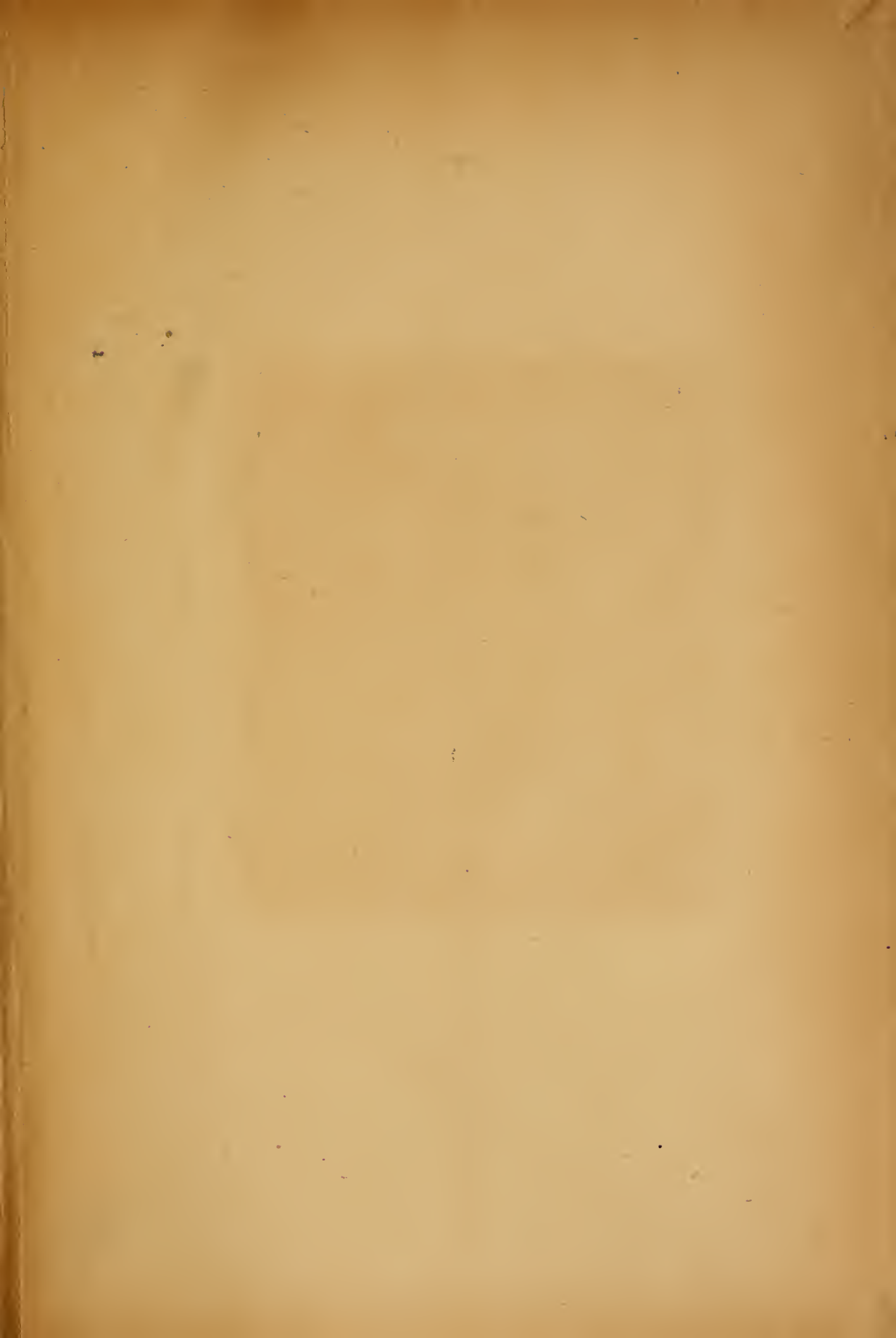


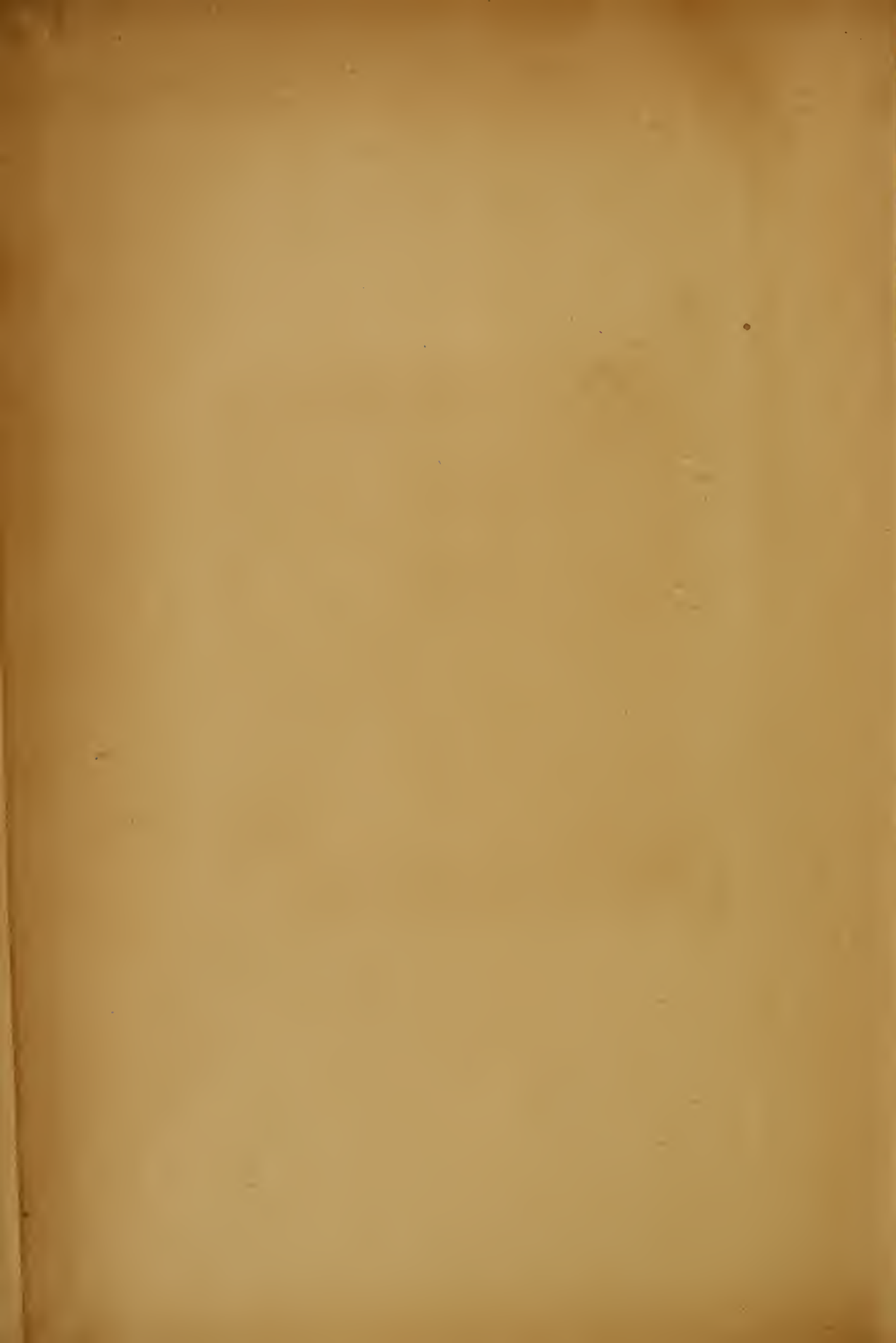
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THE NON-SURGICAL TREATMENT OF EXOPHTHALMIC GOITER

By Israel Bram, M.D., of Philadelphia, Pa.

GENERAL CONSIDERATIONS—Exophthalmic goiter does not occur as an endemic disease, and is not especially common in districts where ordinary goiter is endemic. Physicians located in goitrous districts claim that the exophthalmic type is rare among their cases. Dr. Montoya Y. Florez, Prof. of Clinical Surgery at Medellin, Columbia, states that although endemic goiter is extremely common in that country, he has never seen there a case of exophthalmic goiter.

The distinct causes of exophthalmic goiter are still obscure, though the malady is attributed mainly to disease respectively of the central nervous system, the cervical sympathetic and the thyroid gland. Most observers are of the opinion that the disease is of thyroid origin (hyperthyroidism) in view of the fact that most of the symptoms may be induced in the normal person by the administration of sufficient quantities of thyroid extract.

The etiology of the disease, though obscure, is often directly traceable to an inherited sensitive nervous system, emotional disturbances, prolonged physical or mental strain, fright, worry and acute diseases. In a case of my own the disease manifested itself several days after a severe fright resulting from a practical joke played on the patient by friends.

The four cardinal symptoms of Grave's disease are:

1. Enlargement of the thyroid gland (goiter).
2. Rapidity of the heart action (tachycardia) with palpitation.

3. Prominence of the eye balls (exophthalmos); Stellwag's and Von Graefe's signs.

4. Tremor of the outstretched hands.

In most cases, however, some or all of the following symptoms are also present:

5. Various nervous symptoms, as excitability, a change of habits and tastes, and rarely a condition resulting in acute mania.

6. Diarrhea.

7. Glycosuria.

8. Patchy pigmentation of the skin.

9. Local accumulation of subcutaneous fat on the anterior abdominal wall.

10. Sweating and vasomotor instability of the skin.

11. Diminished respiratory expansion and dyspnea.

12. Occasional slight elevation of temperature.

One or more of the four cardinal symptoms may be absent, but there is usually no difficulty in making a diagnosis. Exophthalmos is by far the most characteristic symptom of the disease, and in its absence the diagnosis is at times difficult. Persistent frequency of pulse with goiter is sufficient to raise a strong suspicion of Grave's disease, and a careful search for any of the other symptoms should be made.

The treatment of this disease is most successful in the early stages; it is therefore necessary that the diagnosis be made as promptly as possible. In the absence of exophthalmos, the persistently rapid pulse, the clammy, tremulous hand, and the fidgety nervous manner of the patient are quite sufficient for diagnosis of this disease in most cases.

Treatment—Reviewing the subject of operative treatment of exophthalmic goiter, one cannot help questioning the advisability of this mode of treatment. Though surgical

removal of the endemic types of goiter is highly practical and successful, such is not the case in the exophthalmic type, for the following reasons:

1. The high operative mortality.
2. The frequent recurrence of symptoms after operation.
3. The possibility of post-operative myxedema and tetany.
4. The fact that some cases recover spontaneously.
5. The fact that the majority of cases may be cured by non-surgical procedures.

However, if pressure symptoms in marked cases threaten asphyxia, this may be considered a surgical complication of the disease demanding surgical intervention.

The non-surgical treatment of exophthalmic goiter must be extremely broad in its scope, and almost every drug in the materia medica has been used by some, with varying degrees of success or failure. We must remember that not only the *disease* must be carefully treated, but more so, the *patient*, and measures successfully employed in one case may prove useless or harmful in another. However, in a general way, I mean to mention in this paper only those measures which have proven valuable in the average case suffering from this disease.

The treatment may be subdivided into three headings, (a) hygienic, (b) dietetic, (c) medicinal.

(a) *Hygienic*. The environments should be made as favorable as possible; physical or mental strain should be interdicted. If possible, a change of climate, preferably to a place of moderate elevation. Regular bathing, adapted to the patient's strength, should be practiced. Sea-bathing may prove harmful to the patient, but warm salt-water baths are oftentimes beneficial. In cases not too far advanced, regular exercise (which must stop short of a feeling of fatigue) must be taken. If exercise is not practicable, massage is useful. Rest in bed a few weeks at a time, at intervals, is often advisable. In severe cases prolonged rest in bed is of paramount importance, to overcome as far as possible the tachycardia, muscular weakness, nervous irritability and other symptoms. In all cases I advise an afternoon rest of two hours after the mid-day meal, and at least eight hours' sleep at night. Living apartments are to be well-ventilated, both day and night. Worry, anxiety, anger and other emotions are to be warned against, and the reading of light literature of a cheerful vein for an hour or two a day is advised. The patient is to be encouraged to acquire the habit of

deep breathing to overcome the shallow respiratory expansion characteristic of this disease.

(b) *Dietetic*. The chief articles of food to be advised are milk, buttermilk, cream, eggs and plenty of bread and butter. Moderate quantities of fish are permitted and meat is reduced to a small portion once daily. The use of tea, coffee, alcoholic beverages and tobacco should be strictly prohibited. Stewed fruits and vegetables in season are permitted in moderate quantities, but such substances as strawberries, bananas and watermelon should be excluded from the dietary. These patients are usually anemic and poorly nourished and for this reason a judicious attempt at forced feeding should be made, bearing in mind the importance of keeping the digestive apparatus in good functional condition. It is my practice to advise six partial, rather than three full meals daily, to avoid the cardiac and respiratory discomfort secondary to gastric distension.

(c) *Medicinal*. Organotherapy has played an important part in the treatment of exophthalmic goiter. The most important substances used are derived from the thyroid, ovarian, pituitary, thymus, and suprarenal glands.

Thyroid Gland. On the supposition that Grave's disease is due to altered thyroid secretion, the administration of healthy thyroid seemed practicable and was tried by many clinicians. It was soon found to aggravate the symptoms, which phenomenon is easily understood. It is now generally conceded that the administration of thyroid is contraindicated in Grave's disease, a condition in which the economy is already poisoned by an over-production of thyroid elements.

Ovarian and Pituitary Extract have both been tried. At present reports are uncertain and conflicting, and more experience is necessary before arriving at definite conclusions regarding the use of these substances in Grave's disease.

Thymus Extract has been used by Owen and Mikulicz with some degree of success in some cases. I have used it in several cases without benefit. This substance is deserving of further trial.

Antithyroidin has proven highly successful in many cases of Grave's disease. It is the serum of sheep deprived of their thyroid glands six weeks before the first serum is taken. It is preserved with 0.5 per cent. carbolic acid and with proper precautions will last indefinitely. With this serum Moebius, Schultes, and many others have obtained favorable results. The serum

is best given internally in doses of .5 to 15 grams a day, in wine usually. Improvement has been noted after from 30 to 120 grams have been taken. Intermittent treatment is recommended by some observers. Devic and Gardere (Lyon Medical, 1910, No. 37 and 38) report very favorable results by the use of antithyroidin subcutaneously. In a severe case they injected 1 Cc. of the serum every other day for ten days, then 1 Cc. daily for another ten days, then 2 Cc. daily for a third period of ten days. After an interval of ten days the series of injections was carried out anew. Thus the patient received 70 Cc. of anti-thyroidin in the two series. These series were repeated at intervals during the course of eighteen months with marked benefit to the patient.

"Rodagen" is the dried milk of thyroidectomized goats and was introduced by O. Lanz. "Thyroidectin" is another blood preparation. Rogers and Beebe have done much clinical work with sera prepared by inoculating rabbits or sheep with extracts from human thyroids removed from patients suffering with exophthalmic goiter. Though reports on these substances are more or less favorable, they are still used experimentally, and it is therefore too early to draw final conclusions regarding their virtues.

Extract of Suprarenal Gland should always be tried in Grave's disease. Its mode of action is obscure, but many cases of cure are reported by its use in this disease. It is possible that there is some relationship between the suprarenal glands and the thyroid, and that the administration of suprarenal gland controls in some way the formation of thyroid products. I have used it in combination with quinine hydrobromide with surprising results; all the symptoms are more or less ameliorated within a week or two. The following is a very useful combination:

Ferri Arseniasgrn. $\frac{1}{2}$
Ext. Glandulæ Suprarenalis.....grn. ii
Quininae Hydrobromidigrn. v
Sig: One capsule t. i. d.

The ferri arsenias in this combination is very potent in overcoming the impoverishment of the blood, improving the tonus of the heart and blood vessels and increasing appetite and digestion.

Potassium Iodide. Though this drug is extremely useful in treating simple goiters, causing their disappearance in many cases, its use is said to be contra-indicated in the exophthalmic type. That most cases of Grave's disease are made worse by potassium iodide cannot be denied, but this rule has its exceptions. We cannot make hard and fast rules in the treatment of a disease

the etiology of which is still largely shrouded in mystery. I was bold enough to administer gradually increasing doses of potassium iodide in a severe case of Grave's disease with very happy results. I gave it at first experimentally in a case in doses of grn. v t.i.d. increasing the dosage by grn. i daily. There being a tolerance to the drug and manifest improvement, the drug was continued until he was taking one dram t.i.d. Catarrh of the larynx caused me to discontinue the drug for two weeks, when I again prescribed grn. V t.i.d. increasing the dose to one dram. The goiter gradually disappeared and the exophthalmos, tachycardia, tremor and other symptoms were greatly ameliorated. There was a gain of twenty pounds in weight. After the sixth month of treatment with potassium iodide he was given quinae hydrobromide grn. V t.i.d. At the present time the patient is a well man, though still under observation.

Quinine Hydrobromide is one of the most important drugs in the treatment of exophthalmic goiter. Most cases are relieved to some extent, while some are cured by its administration in grn. V t.i.d. alone or combined in the prescription suggested under Suprarenal Gland (vide supra). It seems to exert some specific influence on the symptoms, bringing about some degree of relief within a week or two. My personal experience with this drug has been most favorable. It may be administered for months or years with no untoward symptoms resulting from its use.

Sodium Phosphate. Vetlesen reports a series of forty cases treated with sodium phosphate, all of them being benefited in varying degrees. This substance is said by some authorities to possess properties antagonistic to the toxemia of Grave's disease. Whether this be true or not, its administrations in drams i every morning enhances the possibilities of recovery by its favorable influence on the liver and bowels, stimulating those emunctories to full physiologic function.

Sodium Salicylate in grn. X doses four times a day was followed by almost total relief in two cases treated by J. M. Anders.

Sodium Glycerophosphate was found to reduce the size of enlarged thyroid glands by Trachewsky in Kocher's clinic. Starr (Medical News, April 18, 1896) has also found this remedy of great service in several cases.

Lecithin has been successfully employed by H. J. Berckley in four cases of exophthalmic goiter, resulting in cure. He states that lecithin is probably an antithyroid

hormone. It also stimulates the resistant powers of all the tissues (through the general agency of the leucocytes) to greater general activity. Not only are the leucocytes increased to 12,000 or more but the erythrocytes are also greatly increased. Hyperalimentation and rest are necessary adjuvants to the treatment. Lecithin is contra-indicated in the presence of disturbed digestive functions.

Ergot and *Digitalis* are both useful in overcoming the relaxed heart and blood vessels characteristic of this disease. *Belladonna* may also be used for this purpose in cases, where relief for profuse perspiration is necessary. In this connection the following prescription will be found useful:

Ext. *Belladonnæ*grn. $\frac{1}{4}$
Ext. *Digitalis*grn. $\frac{1}{8}$
Quininæ Hydrobromidigrn. v

Sig.: In capsule three or four times daily.

Sodium Cacodylate has been used with success by Renaut. It is best administered as follows:

Sodii Cacodylatisgrn. xxx
Spiritis Frumenti5vj
Syrupi5vj
Aquæ3ij

Teaspoonful after each meal for about a fortnight, discontinue for a few days, then resume treatment.

Other drugs suggest themselves from time to time in the treatment of the symptoms that may arise. Among them are the picrates, duboisine sulphate, strophanthus, strychnine, zinc valerate, and the bromides.

In addition to internal medication, the following supplementary measures are highly efficacious: (1) external applications (2) galvanism (3) the use of the X-rays.

(1) *External Application* seem to markedly assist the contraction and disappearance of the redundant thyroid tissue. The following has been very useful in my cases:

Camphor-Menthol5ij
Tr. Iodi3ij

Sig.: Apply one coating over entire thyroid area every twenty-four or forty-eight hours.

Apply one coating over entire thyroid area every twenty-four or forty-eight hours.

Some observers will say that the tr. Iodine appears contra-indicated in the treatment, even if externally applied. My experience is such that I cannot advocate the above procedure too highly. In many cases the goiter slowly but surely shrinks away under the camphor-menthol iodine application as a supplement to other appropriate measures.

The following is another useful application:

Ungt. Hydrarg. Iodi Rubri
Ungt. *Belladonnæ*aa 3ijj
Lanoliniad 3ij

Sig.: A small quantity the size of a hazel nut to be rubbed gently into the goiter once or twice daily.

(2) *Galvanism* should be given a thorough trial for over three or four months (Osler). Rockwell has been very successful in the treatment of a large number of cases of exophthalmic goiter with the galvanic current. James Hendrie Lloyd (University Medical Magazine, Dec. 1890) uses three gold plated needles well insulated to within one-third of an inch of the point, connected by a branching cord so that all were attached to the negative pole. The needles were inserted well into the goiter; the positive pole, a large flat sponge, was applied to the nape of the neck. The greatest strength was 24 milliamperes, but this could not be continued, the average was about from 15 to 18 milliamperes, the séance being about twenty minutes. Lloyd reports a patient cured by fourteen applications.

(3) *X-rays*. There are good, scientific and theoretic reasons for employing the X-rays in exophthalmic goiter. The essential pathologic feature in Grave's disease is exaggerated secretory function of the thyroid rather than glandular hypertrophy. This hypersecretion chiefly gives rise to the characteristic symptoms. An early essential physiologic action of prolonged radiation upon glandular structure is an inhibition of glandular activity succeeded by atrophy of tissue. This action is the basis for the use of the X-rays in Grave's disease. Should X-ray treatment be made uniformly successful it would be a most desirable method as the death rate attending its use is practically nil and the only danger associated with it aside from the "burns" is a slight chance of carrying the inhibitory action too far, which is hardly worth considering when the treatment is in the hands of an experienced roentgenologist. The use of proper technique is the secret of success, so that without going into detail it may be said that the case should be entrusted to an expert. During this treatment the application to the skin of substances of an irritant character should be prohibited. It is a useless waste of time and trouble to undertake X-ray treatment unless it can be persisted in for at least three or four months before giving up, although in favorable cases relief is obtained much sooner. The shorter the duration of the disease the more favorable the prog-

nosis in X-ray treatment. The extreme nervousness and tremor usually subside first, followed by the palpitation and dyspnea, and later by material lessening and oftentimes an entire disappearance of the tachycardia and exophthalmos. The really distressing symptoms are practically eliminated in favorable cases, usually permanently, though there may be a relapse necessitating a renewed course of treatment.

CONCLUSIONS.

1. Barring exceptional cases the treatment of exophthalmic goiter is essentially non-surgical.

2. All cases do not respond to the same treatment, though there are several drugs capable of benefiting the majority of cases.

3. The most useful drugs in the treatment of exophthalmic goiter are extract of suprarenal gland, quinine hydrobromide, antithyroidin, potassium iodide, iron and arsenic (preferably ferri-arsenias).

4. Rest, hyperalimentation, hydrotherapy and electricity are essential adjuvants to successful treatment.

5. No case should be pronounced medically incurable until it has been subjected to four months' conscientious treatment without benefit.

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SIMPLE CATARRHAL INFLAMMATION OF THE COLON AND RECTUM.*

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THE catarrhal diseases of the large intestine classified as colitis, those described as sigmoiditis, and lastly, those attacking the lower five or six inches of the alimentary canal, known as proctitis, are pathologically the same disease only situated at different portions of the large bowel.

The first step to a practical understanding as to the etiology, diagnosis and treatment must be based upon the ability to reason the cause and effect of either of these forms of disease at any level of this

tract, for the cause may be the same in either a colitis, sigmoiditis or a proctitis. Just why a particular area is selected cannot be explained unless we are guided by a known physiological or anatomical weakness. We may have all of the alimentary canal affected by the same inflammatory process at one time. Experience with the simple catarrhal inflammation shows a tendency to extend downward while an extension upward seldom or never occurs.

When the disease has been a general inflammation of the entire colon and resolves itself into a chronic catarrhal condition of either of these three portions of the bowel it is hardly possible to decide as to the exact area affected in the original or primary inflammation.

The catarrhal inflammations of the rectum find their analogues in those of the pharynx, and with the average experience of the general practitioner are easily recognized by comparison.

Many of the pathological conditions which affect the adult intestinal canal are to be found in those of the child. If we could conceive of a general working scheme or classification based upon our more intelligent knowledge of local conditions in the adult, perhaps more could be accomplished with the treatment of these diseases.

ATROPHIC CATARRHAL INFLAMMATION.

Atrophic catarrhal inflammation of the colon and rectum is characterized by its thinned out almost transparent mucous membrane. The membrane being denuded of so much of its glandular elements as to make plainly visible in some cases the underlying net work of veins and arteries with an occasional area that from denudation of the epithelium if left bare, and resembles a small ulcer. This condition is the result of a long continued chronic atrophic inflammatory process. It may begin in young adult life in the form of a hypertrophic inflammation and continue to old age. The mucous membrane looks granular with portions more or less congested or bosselated. The air pressure on examination with sigmoidoscope will be sufficient to balloon the whole cavity to such an extent as to almost burst the bowel and distort it so much as to make the passage of the instrument much more difficult than with the hypertrophic variety. The hypertrophied mucous membranes being heavier, hold the contour much better and assist in finding the course of the bowel lumen. The surface is dry, may be rough, or glistening smooth, inelastic and as mentioned, very light in weight. The crypts of Lieberkühn

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January 15th, 1912.

are greatly bared of their epithelial lining excepting at the bottom.

Etiology.—The influences said to cause this disease or relate to it are so many that it is a question as to our having any satisfactory idea of its true origin. In my practice I have always considered the nearest and most practical way was to regard the cause of this atrophic catarrhal condition as one of syphilitic origin, either inherited or acquired, as the result of the degeneration of a hypertrophic inflammation. Some constitutional weakness seems of a certainty to be the cause. The environments, over-work, poor health, poor ventilation, improper feeding, either over-eating or poorly selected diet of childhood are others. This disease and its complications collectively form a large number of the cases of catarrhal conditions which the rectal specialist is called upon to treat, and which bring it to the foremost rank of importance and requires the greatest circumstance to find the cause.

Symptoms.—Constipation is naturally the first cause of complaint as the weakened tissue wall and the loss of the physiological mucous secretion would suggest. The stool is dry, hard and lumpy, sometimes coated with mucous or blood. The atrophy extends to the anal margin in some cases causing numerous small fissures and hemorrhages. Flatulence and indigestion are most constant symptoms. The patient feels languid, complains of loss of sleep, loss of flesh, and suffers from general nervous disturbances, which make him fear a general breaking down in health, not understanding the nature of the trouble.

Treatment.—First the constitutional treatment directed to the probable underlying cause. For a routine treatment the syrup ferri iodide, the suggestion of an open-air life, the use of plain digestible foods and the regulation of the bowels so as to make the bowel empty the entire lower contents at one or at the most two movements each day. Stimulation of intestinal peristalsis with cascara seems to be the ideal method. Sugars and starches should be used with moderation on account of their tendency to fermentation. Tea, coffee and alcohol are to be discouraged, and if possible not used.

The local treatment must first be to relieve the distressing symptoms about the anal margin, such as fissures, pruritus or hemorrhoid. Silver nitrate, in one form or another, stands almost invariably in the foremost rank with all authorities for the fissures. My own experience has been that silver nitrate is best. The pruritus and

which is present very often with the fissure or hemorrhoids can best be relieved by controlling the mucous discharge from the rectum or sigmoid.

Atrophic proctitis or sigmoiditis should be treated on the theory of a malnutrition, and methods which cause a reasonable degree of congestion in the parts are indicated. The irrigation of the rectum and sigmoid if possible for fifteen to twenty minutes each day with simple hot water or a one or two per cent. solution of silver nitrate will be most useful, or a five to ten per cent. ichthyol solution. The application of silver nitrate or ichthyol is best after the bowel has been cleansed by plain water. Sometimes the fluid extract of krameria in twenty per cent. solution will be most beneficial in soothing the irritated mucous membrane until more stimulating treatment can be instituted which can be determined by the amount of tenesmus or pain after the injection with the silver nitrate. This should be applied with the proctoscope or sigmoidoscope in position and by the use of an ordinary hand ball atomizer the desired solution is thrown into the bowel; the window of the proctoscope is then put on and with the air insufflator the fluid is blown upward. Several applications may be necessary before the entire area is thoroughly treated. Care should be exercised on the withdrawal of the proctoscope that the window is left so that the air already in the bowel will not force the solution out on the withdrawal of the instrument. This can be avoided by the prompt application of a gauze sponge, and the quick withdrawal of the proctoscope.

CHRONIC HYPERTROPHIC CATARRHAL COLITIS.

Chronic hypertrophic catarrhal colitis, chronic colitis, mucous colitis, membranous colitis, all of these names are used to describe the hypertrophic form of catarrhal colitis, which consists of a hypertrophy of the glandular and submucous elements. The mucous glands and follicles (Lieberkühn) are distended with mucus. The epithelial cells undergo fatty degeneration. The lumen of the gut may be narrowed, caused by the over-production of tissue and the swollen glandular apparatus.

Ordinarily the walls remain the same or slightly thickened. There may be small abrasions or excoriations due to the ease with which the membrane is injured from the feces on the introduction of the sigmoidoscope. Ulceration is found in the severer forms. The membrane presents the appearance noted in the pharynx, with the same form of catarrh; that is, inflamed and

swollen, with occasional bleeding points. The pain prior to the expulsion of the mucus, technically called the mucus crisis, is probably caused by the intestinal peristalsis bruising the swollen and inflamed mucous membrane.

This disease, in some cases, probably begins during infant life from poorly selected diet, and continues unabated to old age. It is also probably the forerunner of the atrophic type in which it frequently terminates.

Symptoms.—Pain at defecation with the discharge of mucus and possibly blood associated with chronic intestinal indigestion and the discomforts produced by it, such as flatulence, loss of appetite, lassitude and mental depression are the subjective symptoms which alarm the patient and force him to seek the advice of the physician. Constipation may alternate with diarrhea; the hard fecal mass is coated with mucus and the loose diarrheal movements resemble the castor oil defecation so familiar to all of us. The tongue is coated, the abdomen distended, there is a general depression and the extremes of heat of summer or cold of winter are felt acutely. There are evidences of auto-intoxication. These subjects suffer frequently with furuncle. Thick masses of mucus may be discharged before or after fecal defecation, and at times nothin but mucous discharges, which irritate and annoy the patient. Casts of thickened mucus from some portion of the intestine may be passed and cause the patient the gravest apprehension.

Treatment.—The treatment of this disease is one to be studied with the greatest care, as often the case that is simplest in appearance will cause the greatest difficulty or uncertainty in finding the cause, which may be linked very often with some other disorder and due to that disorder in some nervous way. Therefore, we have many different opinions as to its treatment. Constipation, appendicitis, floating kidney, disease of the reproductive organs or the malposition of them in women, adhesions, enteroptosis, or invagination of the intestine produce a certain amount of nervous reflexes. Such a neurosis is the cause of a number of cases, and must be treated accordingly. The removal of an appendix, the loosening up of adhesions by means of the sigmoidoscope, and the Wales bougie or a laparotomy are often followed by excellent results.

Those cases most commonly brought to our attention and which give most gratifying results to patient as well as physician,

are due to digestive errors and constipation. The digestive troubles may be dependent upon the many well-known causes, habits of eating, drinking, environment, temperament, constipation, the cause of which may be obstruction, pain from fissure in ano, hemorrhoids and polypi.

The diet in these cases should be nutritious in order to sustain the patient during a long period of treatment but restricted to those articles that are easily digested and which are not productive media for the bacteria which inhabit the intestinal canal. Foods containing starch and sugar are therefore interdicted, because of their rapid fermentation which increases and favors bacterial growth. Coffee and tea are harmful to some patients and are best limited to the smallest amount. Milk as a single diet forms hard, insoluble stools, which irritate the mucous membranes and often causes bleeding.

Stimulating drinks in the form of alcohol and the irritating condiments ordinarily used on foods are harmful and should be interdicted. A cup of hot water before breakfast or taken before each meal is most beneficial in flushing out the stomach and moving the bowels. The bowels should be regulated if necessary with cascara. The resin bearing cathartics should not be used because of their irritation to the mucous membrane of the rectum.

Bismuth subnitrate, zinc sulphocarbolate, salol, betanaphthol and ichthyol are all indicated for their selective action in arresting fermentation. Castor oil in five to ten drops repeated every two or three hours for a period of a few weeks often controls the diarrhea; calcium sulphide in one fourth grain doses given three or four times a day in some cases acts specifically and is worthy of a fair trial.

Locally, the irrigation of the entire colon is easily accomplished. In some patients a preliminary cleansing enema must be given to insure an empty bowel. The irrigation is best given in the knee chest position, but may be effective with the patient in the Sims position. One to three quarts of any of the following drugs in solution may be used each day for a period of two weeks, afterwards varying the irrigation to three times a week or oftener as indicated. Hydrogen peroxide, ten to twenty per cent. fluid extract hydrastis, 1 to 5,000; solution of silver nitrate, 5 to 10 per cent. ichthyol solution or a ten per cent. solution of aqueous fluid extract of krameria. The krameria in all cases excepting the very severe forms has proved most beneficial

for its pain relieving and astringent properties.

The administration of epsom salt or any of the alkaline laxatives, one each week while a patient is under treatment will deplete the congested mucous membrane and thoroughly cleanse the colon. This rule has proved of benefit in those protracted forms of catarrhal inflammation in conjunction with whatever other treatments have been carried out.

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DIGITALIS GLUCOSIDES AND ALLIED DRUGS

(Continued from page 386, 1912)

VARIOUS color reactions have been suggested for the chemical identification of the digitalis glucosides; some of these have gained full recognition in laboratory work, but most of them cannot be considered conclusive without the aid of biological tests. The first fairly characteristic reaction was already discovered by Homolle. He found that his digitalin gave an intense green coloration with concentrated hydrochloric acid. To which constituent of digitalin Homolle this coloration is due is uncertain; it may, however, be pointed out that among the digitalis glucosides which have since been studied in detail the only one which gives this reaction is digitoxin. Digitalinum verum is colored yellow by hydrochloric acid, digitonin remains colorless and on heating with this acid it becomes red.

Later on Homolle's reaction underwent several modifications, some of which were quite unnecessary, with the intention of rendering it more characteristic. Thus Jorissen used a solution of 1 gramme of zinc chloride in 30 grammes of water and 30 grammes of hydrochloric acid. As might have been expected, it gave a green color with digitalin. The second part of Jorissen's reaction, namely, that digitalin when evaporated with the zinc chloride solution mentioned above assumes a brown or black color, cannot be considered characteristic for digitalin, even though Czumpelitz attributes the chestnut-brown color obtained on evaporating to dryness to be due to the condensing action of the zinc chloride. O. Pape varied Homolle's reaction by mixing digitalin with ten times the amount of starch, adding sufficient concentrated sulphuric acid to form a thick paste and then diluting with hydrochloric or nitric acid. The starch is said to be colored green by this method. Lafon heated digi-

taline with a mixture of alcohol and sulphuric acid (1:1) until it became yellow and then added a drop of very dilute iron chloride solution. This also gave a green color. This color is probably produced by all mineral acids under suitable conditions, and also by sulphuric acid, provided it is not masked by secondary reactions giving dark colored or black products, or by the brown coloration resulting from its mixture with the red digitalin reaction described below. Flückiger modified the test as follows: he concentrated phosphoric acid (25%) by heating on a watch glass, and added digitalin Nativele to the warm acid. The digitalin was colored green and the acid yellow. The mechanism of the green coloration has not yet been explained.

While digitoxin produces a green coloration with concentrated hydrochloric acid, it causes a greenish-brown to brown color with concentrated, pure sulphuric acid. Digitalinum verum, on the other hand, is only colored yellow by sulphuric acid. But if the sulphuric acid contains oxidizing substances, such as iron oxide or nitric acid, it yields a deep red color with digitalinum verum. For this reason Grandeaue also used bromine with the sulphuric acid for the digitalin reaction, by exposing the solution of digitalin in sulphuric acid to the action of bromine vapor. In carrying out this reaction a violet-red color is obtained. Buckingham used a solution of molybdic acid in sulphuric acid, which yields a crimson color with digitalin. Kiliani describes a digitalin reaction similar to Grandeaue's which is probably characteristic of digitalinum verum. If a little digitalin verum is dissolved in sulphuric acid and a drop of very dilute nitric acid, iron chloride solution, or bromine is added, a bluish-red color is produced, similar to the color of digitalis flowers, which soon disappears. The touch of blue in the red coloration has always been considered of special value.

Keller gives the following reactions for the digitalis glucosides. The glucoside is dissolved in 4 Cc. of glacial acetic acid, one drop of a dilute solution of iron chloride is added and the mixture is layered on to 4 Cc. of sulphuric acid. A colored ring appears at the junction of the liquids. Digitonin gives a pale pink color, which soon disappears. Digitalin. (verum) gives rise to a carmine ring, still plainly visible as a permanent violet-red color if only 0.05 milligramme of digitalin is present in 1 Cc. of glacial acetic acid. Digitalein gives a similar coloration, but it is rather fainter and not so constant. Digitoxin at first gives a

dirty greenish-brown color, but very soon the uppermost layer of the sulphuric acid is seen to become brownish-red, while above it a broad, deep bluish-green band is formed, the color of which soon passes into a permanent indigo-blue. While the mechanism of the green color reaction of digitoxin cannot be explained, the blue coloration is probably due to the splitting up of the digitoxin, by which digitoxose is formed. This latter most probably causes the blue ring, for Kiliani has found that digitoxose yields a blue color when dissolved in acetic acid containing iron oxide and sulphuric acid.

In analytical practice, the following reactions for the three most important digitalis glucosides have been extensively adopted, being founded on the observations detailed above:

Digitalin. verum (and digitalin. Germanicum) dissolves in pure concentrated hydrochloric acid, or sulphuric acid, giving a yellow color. If a drop of dilute ferric chloride solution is added to the solution in sulphuric acid, a red color containing a touch of blue is immediately produced; the depth of the red coloration varies according to the amount of digitalin present, and it remains constant for days. This coloration is most probably due to digitaligenin, a product of decomposition of digitalin. If sulphuric acid containing iron oxide is used for this reaction, a yellow coloration often appears at first, which lasts for a short time and very soon changes to red. Digitonin is not altered by a similar test; digitoxin is colored a dirty greenish-brown or brown.

Digitoxin is most easily recognized by Keller's reaction described above; it may also be carried out in the following modification. To 100 Cc. of concentrated sulphuric acid about 1 Cc. of a 5% aqueous solution of ferric sulphate is added, while a mixture of 1 Cc. of the same ferric sulphate solution with 100 Cc. of glacial acetic acid is also prepared. If now a trace of digitoxin is dissolved in about 5 Cc. of this glacial acetic acid containing iron oxide and this solution is layered on to 5 Cc. of the sulphuric acid containing iron oxide, the coloration, especially the bluish-green band, will become more evident. The green coloration referred to above, formed by the action of concentrated hydrochloric acid on the glucoside, is also characteristic of digitoxin.

Digitonin is not colored either by hydrochloric acid or by sulphuric acid in the cold. On boiling with hydrochloric acid, or with sulphuric acid which is not too di-

lute, a red solution results, the intensity of which gradually increases. (Compare Cloetta, Archiv für experimentelle Pathologie 1901, Vol. 45, p. 435.)

The reactions given above suffice as a means of identification for pharmaceutical purposes; they are not conclusive for forensic purposes. In this case a biological examination is absolutely necessary.

Besides the qualitative tests, the quantitative estimation of digitalis glucosides in digitalis leaves is of more general interest. So far the estimation of digitoxin, as worked out by Keller, is the only one deserving of consideration. It can be applied in a slightly modified form in the following way.

28 grammes of air-dried, powdered digitalis leaves are placed in a suitable glass-stoppered flask of 500 Cc. capacity; over these are poured 280 grammes of alcohol 60% (by weight) and the mixture is left to stand for 3 to 4 hours, shaking it frequently. It is then filtered and 207 grammes of the filtrate are evaporated to about 25 grammes on a water-bath. Sufficient water is added to the residue to bring the total weight to 222 grammes, and while stirring, 25 grammes of official liq. plumbi subacetatis fort. are added. The mixture is immediately filtered and to 132 grammes of the filtrate, in an Erlenmeyer flask, a solution of 5 grammes of sodium sulphate in 8 grammes of water is added. When the precipitate has settled, 130 grammes of the clear fluid are poured into a separator, 2 grammes of solution of ammonia (10% NH_3) are added and the mixture is shaken 5 times, each time with 30 Cc. of chloroform. The chloroformic solutions are filtered and then evaporated, the dry residue is dissolved in 3 grammes of chloroform, and, in order to precipitate the digitoxin, 7 grammes of ether and 50 grammes of petroleum ether are added. The flocculent digitoxin which separates is collected on a small filter (5 cm. diameter) and dissolved on the filter by the addition of hot absolute alcohol. The alcoholic solution which runs through is collected in a glass capsule, evaporated to dryness and the residue dried until the weight is constant. This multiplied by 10 gives the percentage of digitoxin contained in the leaves analyzed. But, according to J. Burmann, this so-called digitoxin is pseudo-digitoxin, for in contradistinction to true digitoxin it is amorphous and soluble in water and ether. Kraft declares that the product obtained by Keller's method consists chiefly of gitalin (or gitalin hydrate and anhydrogitalin), in addition to

digitoxin. He agrees with Burmann in that he also consider Keller's digitoxin to contain only a very small amount of digitoxin.

PHYSIOLOGICAL AND PHARMACOLOGICAL.

It is generally acknowledged that digitalis represents a cardiac poison for cold-blooded and warm-blooded animals, the action of which can be produced equally by using a single large dose or by smaller doses continued for some time. This action affects the heart, the circulation, the central nervous system, metabolism and diuresis to a greater or less extent; it is also said to have a paralyzing influence on the muscles and to disturb digestion. The action varies considerably according to the dose and to individual idiosyncrasy, so that the three usual stages in the action of digitalis may not be differentiated or may occur in unusual sequence, or not at all. The first stage consists in a decrease in the pulse rate, and a rise in arterial blood pressure, symptoms due to direct stimulation of the vagus. If the stimulation of the vagus be too strong, the second stage in the action of digitalis is reached—the paralysis of the vagus leads to a sudden considerable increase in the pulse rate and a gradual fall in blood pressure. The third stage is marked by a very high pulse rate and very low blood pressure, the heart is completely paralyzed, stops in diastole and fails to respond to any further stimulant action. These three stages only occur in warm-blooded animals when the dose administered is suitable for the individual, and this cannot in all cases be determined beforehand. If the dose be too small, the action may not go beyond the first stage, and on the other hand, if the dose to be too large, the action of the second or third stage is almost immediately displayed.

The action of digitalis on the central nervous system in man is apparent by vertigo, hallucinations, fainting, supraorbital neuralgia, buzzing in the ears, dilated pupils, and disturbances of vision. With regard to the action of digitalis on metabolism, von Böck has shown that it increases with a rise in blood pressure, while a fall in blood pressure causes a decrease in metabolism. Diuresis also appears to depend on the rise or fall of blood pressure, but in the normal, healthy individual it is little influenced by digitalis. In the presence of organic heart lesions, digitalis must be admitted to have a diuretic action.

Only the first of the three stages in the action of digitalis mentioned above, and

first described by Traube, is of therapeutic importance; therefore the doses administered should be such as not to lead to the dangerous second stage, nor to the third stage, which ends fatally.

An important chapter in digitalis therapy, apart from the therapeutic action of the digitalis substances, deals with their by-effects, which are partly due to the action of the substances themselves and partly to their products of decomposition. In the internal administration of digitalis, or digitalis glucosides, they generally take the form of vomiting or diarrhea; in their external application, as injections, they take the form of symptoms of local irritation. These by-effects are occasionally observed as a consequence of too large doses, individual idiosyncrasy, or as the result of using decomposed preparations, when using digitalis leaves or galenical preparations of the latter, or digitalis glucosides. Thus even when the purest glucosides are used, these by-effects may occur. But in by far the greater number of cases they are due to products of decomposition, which are formed either in the drying of the digitalis leaves or in the manufacture of the individual preparations. Digitaliresin and toxiresin especially, as was pointed out by Perrier, have an unpleasant action, which is liable to produce convulsions.

One of the unwelcome by-effects of digitalis substances is the so-called cumulative action, a property shared, without exception, by all the active digitalis substances. It has sometimes been stated in the literature that one or other of the digitalis preparations lacked the cumulative action; this statement cannot, however, be unconditionally accepted. At first, either from too great enthusiasm or for speculative reasons, cumulative properties were denied for all the preparations, until experimental evidence disproved this statement. But not every worker in this field can be accused of inaccurate observation, for most of them were not in a position to test the digitalis preparation they were using for the active substances it contained. For instance, anyone who tested clinically a preparation containing 10% of digitoxin and 90% of inactive or only slightly active substances could easily draw the conclusion that he was dealing with a preparation which was only slightly poisonous and possessed no cumulative action, at any rate when compared with pure 100% digitoxin; and he might easily overlook the fact that its action was also very much weaker. This does not imply that the therapeutic effect and

cumulative action are always definitely and unalterably proportionate, for in this respect the individual idiosyncrasy of the patient is an important factor, but it may safely be inferred that weak preparations have often led to the conclusion that the preparation had only a slight cumulative action, more especially when the patients reacted well to comparatively small doses. In order to speak of a relative cumulative action it must be proved that in giving equally effective doses of the three digitalis substances recognized as active, viz., digitalin, digitalein and digitoxin, one of them shows stronger or weaker cumulative effects than the other. No one has as yet succeeded in adducing this proof. Rather it must be acknowledged that these three substances are so similar in qualitative action that our means for distinguishing between them physiologically or pharmacologically are insufficient, and that they all possess a cumulative action which cannot be denied. Therefore the therapist must always reckon with this fact, no matter which preparation of digitalis he uses. Action on the heart and cumulative action are two inseparable attributes in the pharmacology of digitalis. The conception of cumulative action is not easy to define, as it includes not only the stronger action of the last doses of digitalis, but also the relatively early appearance of the action following upon equally large or smaller initial doses. Further, it must be borne in mind that this action can be displayed in a therapeutic as well as in a toxic form, and the therapeutic and toxic cumulative action may be considered identical. The commencement of cumulative action is usually considered to occur when the excretion of the medicament takes place quantitatively more slowly than its ingestion, so that an accumulation (*cumulatio*) takes place in the organism, or, as appears to be the case with digitalis substances, in the heart or the cardiac muscle. This accumulation gives rise to a stronger action of the succeeding doses of digitalis, but the accumulated mass of digitalis substances cannot always be taken as the standard, for the heart appears to react more energetically to fresh doses for a time after all fixed digitalis glucoides have been excreted. According to this, a cumulative action is conceivable and possible, even apart from the summation of the mass of material stored in the heart, or of its action. (Lhotak von Lhota, *Archiv. für experimentelle Pathologie und Pharmakologie*, 1908, Vol. 58, p. 350.)

In practice the cumulative action is obviated by ceasing the administration of digitalis substances immediately on the appearance of its symptoms, and discontinuing the treatment for a few days, when it may be recommenced with smaller doses, if necessary. A change to the use of bodies belonging to the so-called digitalin group, to which have recently been reckoned substances not derived from digitalis, e. g., strophanthin, helleborein, convallamarin, adonidin, etc., is not always successful in preventing cumulative symptoms, for it has been found that strophanthin, for example, when given after digitoxin or digitalin, also gives rise to cumulative action and its consequences. Therefore a change of medication, as for instance from the internal administration of digitalis to the intravenous injection of strophanthin, requires care.

THERAPEUTICAL.

Digitoxin! which represents the most active principle of digitalis leaves is the most trustworthy glucoside of digitalis, as it can be prepared in a very pure form owing to its property of forming crystals. The reason why it has not been more appreciated and has so far only been included in two pharmacopœias—the Pharmacopœia Helvetica and the Pharmacopée Française—is probably due to the fact that it is almost insoluble in water and is considered a relatively very toxic digitalis substance. This, however, should not prevent its more general use, seeing that it shares this property with various other official poisons. It has received such many-sided recognition that it can be recommended for more extensive therapeutical trial.

Digitoxin is indicated in all cases in which digitalis has been found of use, especially in diseases of the heart, such as valvular insufficiency and mitral stenosis, and also in nephritis, pneumonia, typhoid, etc.

The first exhaustive clinical test of pure digitoxin was carried out by Masius, who was so well satisfied with his results that he warmly recommended its further therapeutic use. In his experience, the action of digitoxin in broken down or insufficient compensation is certain, rapid, and energetic, without causing gastric disturbances of any moment. As a rule the action is evident in 24 hours, or even in 12 hours; cyanosis and respiratory disturbances disappear, the pulse becomes stronger and more regular, diuresis is increased, oedema disappears and the general condition is improved. The action usually lasts for 8 to 10 days. In pneumonia and typhoid, Ma-

sus also observed a favorable effect on the pulse and temperature. In Graves' disease the tachycardia was favorably influenced. Masius made use of the following prescription.

Digitoxin Merck	0.1 Gm.
Spirit. Vin.	205.0 Gm.
Aq. Destill.	740.0 Gm.
Sacchar.	55.0 Gm.

Of this 0.01 per cent. solution 15 Gm. ($\frac{1}{2}$ oz.) are mixed with 25 Gm. ($\frac{5}{6}$ oz.) of syrup and given every 4 hours. A single dose therefore contains 0.0005 Gm. ($\frac{1}{125}$ grain) and a daily dose 0.0015 Gm. ($\frac{1}{40}$ grain).

Corin, who has carried out more thorough clinical tests with digitoxin than has any other investigator, also considers this drug to be the most valuable of the digitalis glucosides, surpassing by far the French crystalline digitalin (Nativelle). In opposition to Bardet he pointed out that, apart from the necessity of administering digitoxin in solution, it was of importance to ensure that the dissolved digitoxin should not become insoluble when coming into contact with the body juices. He believes that the non-observance of this consideration affords an explanation of the different action of digitoxin observed by others. He therefore prescribed the following solution, which is not precipitated by water, physiological salt solution, or by serum:

Digitoxin Merck..	0.003 Gm. (grn. $\frac{1}{20}$)
Chloroformi	1.0 Gm. (π xij)
Spirit. Vini.	1.0 Gm. (π xx)
Aq. Destill....ad	200.0 Gm. ($\text{vii}\frac{1}{2}$)

Sig.: To be taken in three doses at intervals of six to eight hours.

This medication gave good results in pneumonia. In the course of 15 years' experience Corin continued the use of digitoxin, and confirmed its usefulness, especially in large doses. In the author's experience the administration of digitoxin should be begun immediately the diagnosis of pneumonia has been made, because by this means the disease, provided it has not declared itself, can usually be cut short. At any rate digitoxin is effectual in bringing about the crisis several days earlier. This effort can usually be produced more easily by giving one comparatively large dose than by a succession of smaller doses. Following the administration of the drug, the author soon observed a fall in the temperature. But he attaches more importance to the fact that under the influence of digitoxin the pulse very soon becomes fuller, slower and stronger. In his opinion the action of the drug depends upon the rapidity of the absorption of the pulmonary exudate, where-

by the nutrient medium for the pneumococci is removed. For this reason the action of the drug is only specific in croupous pneumonia, while in broncho-pneumonia following upon measles it is not apparent. Likewise the action is less evident in drinkers, a fact which has long been known with regard to other digitalis substances. From the large number of case histories given by the author one case can only well be quoted which places the action of digitoxin in a very favorable light. He gave his own 8 year old child 0.003 Gm. ($\frac{1}{20}$ grain) of digitoxin within a period of 40 hours, with the result that the pulse and temperature became perfectly normal on the third day. From the author's statistics it is seen that in over 600 cases the mortality was only 5.4 per cent.; for adults the mortality is somewhat higher. If we leave out of count those patients who were unable to take the digitoxin, e. g., who vomited immediately (6 out of 277), and one who was moribund when treatment was commenced, the mortality for adults is 9.5 per cent.; and it must be noted that about half of those who died were alcoholics. In 154 cases in which the commencement of the illness could be definitely determined, 32 were cured in 3 days, 52 in 4 days, 38 in 5 days, 21 in 6 days, and 11 in 7 days. The pulse and temperature in most of the cases returned to normal much earlier. With such excellent results Corin is justified in recommending further trials with large single doses of digitoxin instead of using small doses. The author suggests the following as the most suitable prescription:

Digitoxin Cryst. Merck..	0.003 Gm. (grn. $\frac{1}{20}$)
Chloroformi	gtt. i—ij
Alcoholis	1 Cc. (π xvij)
Aq. Destill.....	50.0 Gm. ($\text{I}\frac{1}{2}$ oz.)
Vini Albi.	
Syrup. Capill. Ven....	āā 25.0 Gm. ($\frac{5}{6}$ oz.)

This mixture is given to an adult in one dose at the commencement of treatment, and it should be given as cold as possible. The patient should have eaten nothing for at least an hour before taking the dose: he should lie as flat as possible with the head only slightly raised, and he should drink nothing for an hour afterwards. If there be any inclination to vomit, ice should be applied to the epigastrium. The emptier the stomach, the more promptly is digitoxin said to act. If vomiting only supervenes after an hour, this does not usually interfere with the action.

With regard to the dosage, the following points should be considered: For an adult man at least 0.003 Gm. ($\frac{1}{20}$ grain) should be given at the commencement of

the illness. If the case is somewhat advanced and the temperature is high, strong persons and alcoholics are given 0.004 to 0.0045 Gm. (grn. 1/16-1/14) or even 0.005 Gm. (grn. 1/12), especially if no good result is apparent 24 hours after the first dose. For children over 10 years of age the dose at the commencement of the illness should be at least 0.0025 Gm. (grn. 1/25); for those under one year 0.0003 to 0.001 Gm. (grn. 1/200-1/64) and after the pneumonia has started 0.001 (grn. 1/64) should be given within 24 hours, or in one dose; on the following days 0.0005 to 0.001 Gm. (grn. 1/125-1/64) is administered.* For children of 1 to 2 years a single dose of 0.001 Gm. (grn. 1/64) is occasionally sufficient, but sometimes 0.0013-0.002 Gm. (grn. 1/50-1/32), given within 12 to 24 hours is required. To children of 2 to 3 years of age 0.001-0.0015 Gm. (grn. 1/64-1/40) is given within 24 hours at the commencement of the illness, and after the disease has started 0.0018 to 0.002 Gm. (grn. 1/36-1/32). To children of 5 to 10 years of age about the same dose may be given as to adult women. For these the author prescribes on an average 0.0025 Gm. (grn. 1/25) at the beginning of the illness.

The conclusion arrived at by Corin as a result of his 15 years' experience are as follows: Digitoxin acts best at the commencement of pneumonia. By administering large doses the disease can be cut short, provided it is not too far advanced and the patient's system is not overloaded with toxins. The action of digitoxin in pneumonia following upon measles is nil. It is, however, useful in these cases if given as a heart tonic. But it will not effect a cure of broncho-pneumonia due to measles. Like all heart tonics and most nerve tonics, digitoxin does not act so well in alcoholics.

Corin's favorable report is of particular interest, as the value of digitoxin and of digitalis generally in pneumonia was beginning to be doubted by other authors.

Unverricht and Wenzel have also ex-

pressed themselves well satisfied with the value of digitoxin. They state that the preparation, besides being taken internally, may also be given subcutaneously, and especially rectally, with great benefit. By the administration of the medicament as an enema, the digestive disturbances which are likely to occur with all digitalis preparations can be considerably diminished or totally avoided, without interfering with the powerful action of digitoxin on the heart. According to Wenzel, a good result can be obtained by this treatment in myocarditis and valvular disease, even if intusion of digitalis has failed. Wenzel prescribes digitoxin in the following solution:

Digitoxin Merck.....	0.01 Gm.
Spirit. Vini.....	10.0 Gm.
Aq. Destill.....	ad 200.0 Gm.

Of this solution, after rectal lavage, 15 Gm. ($\frac{1}{2}$ oz.) mixed with 100 Gm. ($3\frac{1}{3}$ oz.) of lukewarm water were given rectally at first 3 times a day, then twice and finally once a day. Thus the patient received 0.00075 Gm. ($\frac{1}{80}$ grain) of digitoxin in each dose. With this method the author observed vomiting only in two cases, and it ceased immediately on the discontinuance of the medicine. But these patients had complained of gastric trouble before taking digitoxin and were debilitated as a consequence of their prolonged heart disease. The other patients, without exception, bore the enemata without disturbance.

In order to render the administration of digitoxin more convenient the preparation is supplied in tablet form, each tablet containing 0.00025 Gm. ($\frac{1}{250}$ grain) of digitoxin, these are soluble in lukewarm water containing alcohol (15 drops of alcohol to 100 Gm. ($3\frac{1}{3}$ oz.) of water). For an enema 2 tablets are used on an average.

These tables, according to Unverricht, are also suitable for internal use. By the administration of one tablet every 3 hours, or in less urgent cases by the use of 3 to 4 tablets a day, the desired result is obtained. The tablets may be swallowed whole, but they are absorbed better if they are first dissolved in water containing alcohol.

Unverricht has also prescribed digitoxin subcutaneously in the following solution:

Digitoxin Merck....	0.01 Gm. (grn. 1/6)
Alcohol. Absolut....	5.0 Gm. (mc)
Aq. Destill.....	15.0 Gm. (3ss)

Sig.: 0.5 to 1 Cc. (8-17 min.) to be injected.

Kaufmann and Koppe have pointed out that digitoxin, when given subcutaneously, may cause great irritation, or even phlegmon or asptic suppuration. By using the

*Up to the present the maximum single dose was given as 0.001 Gm (1/64 grain) and the maximum daily dose as 0.003 Gm. (1/20 grain). Corin's dosage appears less striking when we consider that the action of the drug only develops in the course of 12 to 24 hours, and for this reason, and on account of the cumulative properties of the glucoside, it appears immaterial whether the maximum daily dose be given once in one dose or in several smaller doses. Besides, much larger doses are now given of other substances belonging to the digitalis group, e. g., strophanthin, so that the doses suggested here cannot be considered alarmingly large. In view of the author's long experience, we may safely rely upon his statements.

above solution phlegmon is never observed and there is either no irritation of the connective tissue, or if present, it is very slight. Van Aubel denies that digitoxin has any irritant properties and recommends its use, dissolved in a little alcohol or chloroform and mixed with water, for intravenous injection. For intravenous injections a solution of 0.0015 Gm. (1/40 grain) of the preparation in a little chloroform and 150 Cc. (5 oz.) of water may be used, of which 12.5 Cc. (210 min.) may be given as a dose, corresponding to 0.000125 Gm. (1/500 grain) of digitoxin. In order to avoid the precipitation of digitoxin in the stomach and consequent gastric trouble, he prescribed a solution of 0.003 Gm. of digitoxin in 10 Gm. of chloroform, and 200 Gm. of water, or a solution of 0.0015 to 0.002 Gm. of digitoxin in 10 Gm. of alcohol and 200 Gm. of water, a corresponding amount of which was given. The author also considers that the toxicity of digitoxin, determined by other observers, has been exaggerated, for in experiments on animals only comparatively large doses are fatal.

Huchard prescribed for subcutaneous injection a solution of 0.02 Gm. of digitoxin in 2 Gm. of chloroform, 26.5 Gm. of alcohol and 48 Gm. of water; Barié a solution of 1 Gm. of digitoxin in 250 Gm. of alcohol and 250 Gm. of water; Meunier a solution of 0.01 Gm. of digitoxin in 1 Gm. of chloroform and 5 Gm. of liquid paraffin, or a solution of 0.003 Gm. of digitoxin in 6 Gm. of chloroform, 7 Gm. of alcohol and 293 Gm. of physiological salt solution; and Rosenthal a solution of digitoxin in oil. The author at first suggested a solution containing 0.000125 Gm. of digitoxin in 1 Cc. of sterile olive oil, but more concentrated solutions can be prepared. The oily preparations are said to possess the great advantage of being only slightly irritant, or entirely painless.

The communications of Dejardin, H. Wolf and Collard agree with Corin's results. These authors lay special stress upon the use of digitoxin in the congestive period of pneumonia and in post-operative pneumonia, but it must be remembered that a period of at least 9 hours elapses before the action of digitoxin is fully developed, so that the preparation must be given in good time.

Fiessinger declares digitoxin to be an excellent remedy for the treatment of cardiac sclerosis with or without nephritis, but it must only be given in very small doses in these cases. The author has frequently given it for periods of 10 days at fort-

nightly intervals. He prescribes it as follows:

Sol. Alcoholic. Digitoxini. (1:1000) gtt. V
Aq. Destill. 300.0 Gm.

Sig.: One tablespoonful to be taken at 10 a. m. and at 4 p. m., so that the mixture will last for 10 days.

This dosage should under no circumstances be increased, even if in consequence of valvular lesions or of the previous administration of larger doses the desired result is not obtained, for otherwise it may have unpleasant effects on the heart muscle.

In mitral stenosis Petit has given small doses of digitoxin with good effect. He prescribed 5 drops of an alcoholic solution 1:1000 to be given for 3 to 4 days every month and only permitted larger doses to be given if no unpleasant by-effects were observed. If asystole should occur, the drug may be given in small daily doses.

According to Curioni, the action of digitoxin in myocarditis can be observed in 4 to 5 hours; the quality of the pulse is improved and the arterial pressure is considerably increased. The diastole of the pulse disappears with doses of 0.0005 Gm. (grn. 1/125) while with doses of 0.00075 Gm. (grn. 1/80) a more or less definite increase in the blood pressure may be expected. In chronic heart disease the author suggests 0.001 Gm. (grn. 1/64) as the maximum daily dose, which is said not to cause dangerous by-effects.

The gastric disturbances observed by I. P. Arnold and H. C. Wood and others as a result of the internal administration of digitoxin are certainly not the rule, otherwise they would not have been partially or wholly denied by such a large number of authors. The question arises what is to be done if a patient vomits after taking digitoxin or digitalis infusion, for in these cases, apart from harassing the patient, its action is open to doubt. In opposition to Corin (compare above), Penzoldt recommends that the digitoxin should be taken after meals in these cases. Another way out of the difficulty is to give the preparation subcutaneously, intravenously or rectally. Several papers may be cited with reference to this point.

Hoffmann von Wellenhof gives his opinion on digitoxin in the following words:

"1. Although for the present the use of the plant itself cannot be left out of consideration, yet the prejudice against the use of pure constituents of digitalis at the bedside must be limited. The undeniable drawbacks which are cited, especially with regard to the practical use of digitoxin, appear to be compensated by the rapid and

well defined manner in which very small doses call forth the characteristic action of digitalis. In some respects it would appear that digitoxin is superior to the infusion as regards the speedy onset and intensity of cardiac action.

"2. Single and daily doses should be as small as the circumstances of the individual case will permit. It is never necessary to exceed a daily dose of 0.002 Gm. (grn. 1/32). The total amount of digitoxin used (during the whole period of treatment) should not exceed 0.005 Gm. subcutaneously, and 0.007 Gm. rectally.

"3. As subcutaneous injection is somewhat painful, the application by enemata will usually be preferable. A special indication for the former method is the necessity of obtaining the digitalis action as quickly as possible.

"4. The most important contra-indication (apart from severe degenerative changes of the heart muscle is the presence of severe gastric disturbances.

"5. Digitoxin should be given to children only with the greatest care."

Biedert reports a case of myocarditis and dropsy, in which all the usual drugs, such as digitalis, strophanthin, diuretin and sparteine had been tried in vain, whereas subcutaneous injections of digitoxin yielded good results.

The reason why digitoxin is but little used subcutaneously lies in its insolubility in water. When alcohol is used, as appears from the reports of Hoffmann von Wellenhof and other authors, the injections are painful, and for this reason other solvents have been sought. Madsen considers the so-called Petit's liquor to be a suitable solvent for digitoxin. It is prepared by mixing 333 Gm. of glycerin with 147 Gm. of water and sufficient alcohol (95 per cent.) to make the specific gravity of the mixture equal to that of water, e. g., 1.00*. If 1 Gm. of digitoxin is dissolved in 1 liter of this mixture, a clear solution is obtained, which will keep well, and of which, according to Allard, 37 to 40 drops correspond to 0.001 Gm. of digitoxin. Either by itself or mixed with water in suitable proportions, this solution is certainly useful for subcutaneous and rectal use; no reports, however, on its use in practice have come to my knowledge.

In any case the solution of digitoxin

*Petit's liquor is best prepared by mixing 100 Gm. of glycerin, 44 Gm. of water and 106 Gm. of alcohol (96 per cent.). If the digitoxin is dissolved in alcohol, and glycerin and water are then added, there will be no difficulty in dissolving the digitoxin.

mentioned above can be used internally and rectally, as is apparent from the communications of Allard. The author obtained the best results in cases of cardiac sclerosis and in the milder cases of cardiac degeneration with edema, and also in cases of mitral and aortic valvular lesions, and in hypertrophy and dilatation of the ventricle, the result of emphysema and chronic bronchitis. In recent cases of myocarditis, endocarditis and pericarditis the results were unequal, and in nephritis, edema and Graves' disease the author was unable to detect any noticeable action of the drug. When applied rectally the action, according to Allard, takes place later, in fact not for 24 to 48 hours. Allard is very careful with the dosage. He considers 0.001 Gm. (grn. 1/64) too much, especially if cardiac degeneration or fever is present. He is of opinion that in advanced degeneration the dose should not exceed 0.00025 Gm. (grn. 1/250). According to J. Sawyer, doses of 0.000125 to 0.00025 Gm. (grn. 1/500-1/250) should suffice, and by using such small doses by-effects are better avoided. He also states that by this method the subcutaneous and rectal administration can be dispensed with. As these sometimes cause difficulties, E. Zeltner is also in favor of oral administration. Although it does not act so promptly, its action is just as sure as that of subcutaneous injection. On the whole Zeltner has come to the same conclusions as Unverricht and Wenzel with regard to the therapeutic value of digitoxin, namely that it is not inferior to the use of digitalis leaves, either in rapidity or potency of action, and has the advantage of more exact dosage. It also possesses another advantage over digitalis leaves and over the so-called standardized leaves, viz., that it does not decompose on keeping, so that on using a preparation which has been kept for a time there is not the risk of finding a considerable diminution in action, as may be the case with digitalis leaves. Clinicians are gradually becoming convinced that digitoxin represents the most active and also the most convenient constituent of digitalis.

With regard to the maximum doses of digitoxin, it is not possible at present to give reliable data on this point. The Pharmacopœa Helvetica and the Pharmacopée Française suggest as a maximum single dose 0.0003 Gm. (grn. 1/200), and as a maximum daily dose 0.001 Gm. (grn. 1/64); Liebreich and Langgaard (Kompendium der Arzneiverordnung 1907, p. 253) fix the maximum single dose at 0.0005 Gm. (grn. 1/125) and the maximum daily dose

at 0.0015 Gm. (grn. 1/40) and they state that the total amount given during the period of treatment should not exceed 0.007 Gm. (grn. 1/10). Kobert (in his *Arzneiverordnungslehre* 1900, p. 334) suggests a maximum single dose of 0.002 Gm. (grn. 1/32), and a maximum daily dose of 0.004 Gm. (grn. 1/16), and as the initial dose 0.0004 Gm. (grn. 1/160).

Digitalinum (purum pulv.) Germanicum.—The German (amorphous) digitalin has always been a favorite preparation, because it is soluble in water and therefore convenient in use. As a cardiac tonic and a diuretic it acts like *digitalis* leaves, and can therefore be used in the same way when indications for *digitalis* arise. It is prescribed internally or subcutaneously, in aqueous solution, and in single doses of 0.005 to 0.02 Gm. (grn. 1/12-1/3). The maximum daily dose is fixed at 0.03 Gm. (grn. 1/2*).

The favorable manner in which digitalinum Germanicum has been criticised is best apparent in the communications of J. M. Patton, G. O. Jarvis, S. Cohen and Beates. An extract of the experimental results obtained by the latter, which almost entirely agree with those of the other authors named, is given below.

Beates mentions as a specially important property of digitalinum Germanicum Merck the absence of unpleasant by-effects on the digestive tract, a circumstance of considerable weight in advanced heart disease, in which large doses are necessary. Only when using large doses such as 0.02 to 0.03 Gm. (grn. 1/3-1/2) has the author occasionally noticed the occurrence of slight gastric disturbances. For this reason he fixed the maximum dose at 0.03 Gm. (grn. 1/2), while he considers 0.006 Gm. (grn. 1/10) to be the smallest active dose. But even should gastric disturbances supervene when large doses are given, they can be cured by the administration of peptone and hydrochloric acid combined with a bitter tonic, or of a preparation of bismuth, and thus permit the continuation of the digitalin medication.

In all abnormal heart symptoms digitalin. Germanicum is of the utmost service and it is therefore to be preferred to other official preparations of *digitalis*. It always acts promptly, except in valvular disease combined with dilatation of the valves.

Digitalin. Germanicum is of special service in senility, in which the most promi-

nent symptoms are congestion, general debility, dyspnea after slight exertion, spasmodic cough, forgetfulness and lethargy. In these cases the administration of 0.01 to 0.02 Gm. (grn. 1/6-1/3) of digitalin. Germanicum is said to cause the disappearance of the symptoms in a short time and to bring about the return of normal conditions, which may lead to a complete cure. In more advanced old age, marked by calcification and degeneration of the arteries, by occasional mental confusion, temporary loss of speech and paralyses, digitalin, in Beates' experience and in opposition to the opinion of other authors, is a useful drug, for according to his careful observations, it strengthens the weakened heart, increases the vasomotor tone, makes the absorption of nourishment possible, regulates metabolism and so prolongs life. In several patients who had suffered severely before, the preparation is said to have warded off all symptoms for 3 years. If albuminuria be added to the symptoms of old age mentioned above, the regular use of digitalin brings about an improvement in the general state of health and strength, which places the value of the drug in the most favorable light, on account of the weakness caused by the loss of albumin. Furthermore, Beates points out that by the use of digitalin the early stage of primary degeneration of the cerebral cortex can be arrested for some time. Muscular asthenia and motor symptoms are improved, even in patients who show no noticeable improvement in cardiac resisting power; the crisis of acute infective diseases, such as that of acute pneumonia, is better borne with *digitalis*. In two cases of this kind Beates gave 0.12 Gm. (grns. 2) of digitalin. Germanicum Merck within two hours.

According to Jarvis, doses of 0.006 to 0.015 Gm. (grn. 1/10-1/4) of digitalin. Germanicum, even when given for many months, do not incommode the stomach in the least. The stimulating influence displayed by the preparation on the walls of the veins, on the cardiac muscle, the small blood-vessels and the corresponding organs is very evident. This direct and reliable action contrasts markedly with the activity of *digitalis* leaves.

Digitalinum Verum is only slightly soluble in water, but is soluble in dilute alcohol. Following Böhm's pharmacological investigation of digitalin, Mottes tried the action of the preparation in man, and found that the best results were obtained by giving 0.00025 Gm. (grn. 1/250) every 2 to 3 hours, when no unpleasant or dangerous

*The doses formerly cited in the literature (compare Merck's Index), e. g., 0.001—0.004 Gm. (1/64—1/16 grain), are too small, according to the American authors mentioned above.

symptoms appeared. According to Ziemssen, digitalin has also been used with success in the Munich hospital. More detailed communications regarding the results of the investigations of these authors have not been published. There are also the two contradictory papers of F. Pfaff and Klingenberg. Pfaff carried out his experiments with the aid of Jaquet's sphygmograph and came to the conclusion that digitalinum verum was identical in action with digitalis. As was at first stated with reference to every digitalis glucoside, the author was unable to detect any cumulative action when the preparation was administered internally. It also caused no vomiting and only gave rise to diarrhea in persons usually disposed to diarrhea. It may be given in the form of pills, or in solution in dilute alcohol in the form of drops, in which way, it is more rapidly absorbed. According to the author, a daily dose of 0.008 to 0.016 Gm. (grn. 1/8-1/4), or even of 0.048 Gm. (grn. 3/4) may be given, without the fear of toxic symptoms supervening.

Klingenberg also gave digitalinum verum in alcoholic solution, although he was unable to detect any difference in its action whether given in solution or as pills. He prescribed a single dose of 0.002 Gm. (grn. 1/32), and a daily dose of 0.01 to 0.015 Gm. (grn. 1/6-1/4), and later of 0.004 to 0.006 Gm. (grn. 1/16-1/10). His experiments are very instructive, for he compared the action of digitalinum verum with that of digitalis infusion in the same patient. But in spite of perfectly reliable experimental methods, his results were less favorable than were those of Pfaff. To quote his results:

"Digitalinum verum has the advantage over digitalis infusion of reliable dosage and the absence of all by-effects.—In the milder, compensated cases of valvular disease a certain influence on the pulse cannot be denied.—In all severe, uncompensated cases of valvular disease, it is quite unable to replace the use of digitalis infusion."

From these communications no definite conclusion can be drawn as to the value of digitalinum verum.

Digitalinum Purum Amorph. Pharmacop. Belgic II. (Digitaline chloroformique Pharmacopée Française 1884).

The digitalin of the Pharmacopœa Belgica II, which was required to be completely soluble in chloroform, and only with difficulty soluble in water, has of late been little used in therapeutics in consequence of

the various special preparations of digitalis which have been issued in recent years.

Before the appearance of the last edition of the French pharmacopœia (1908) it was customary in France, when "digitaline" was prescribed, to dispense digitalinum purum amorph., now only digitoxin is official.

Digitalinum purum amorph. was chiefly given *per os* in the form of pills or granules. The single dose lies between 0.00025 and 0.0015 Gm. (grn. 1/250-1/40), the maximum daily dose is 0.002 Gm. (grn. 1/32).

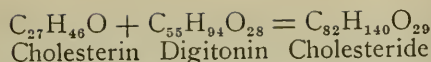
Digitalein.—At the present day digitalein always signifies "digitalein Schmiedeberg," but it must not be forgotten, in studying the literature on the subject, that formerly digitaleins of Nativelle and of Buignet existed, and that with regard to these pharmacological and therapeutic communications have been published, which must not be applied to digitalein Schmiedeberg.

A perfectly pure digitalein has not as yet been issued, but I have recently succeeded in preparing a comparatively very pure preparation, which might be found very suitable for therapeutic purposes. Digitalein has so far been represented in therapy by digalen, which, according to Kiliani, consists of a solution of digitalein in water. Cloetta at first took it for a soluble digitoxin. I have referred to this in my last Annual Report.

With regard to the pharmacological action of digitalein, this is, according to Schmiedeberg, identical with that of digitalin. Koppe also found that digitalein had the same action as digitalin and digitoxin, but in order to obtain its action considerably higher doses are necessary than is the case with digitoxin. According to Krailsheimer, 0.004 Gm. (grn. 1/16) of digitalein corresponds to about 0.0003 Gm. (grn. 1/200) of digitalin (Germanicum), and to 0.0001 Gm. (grn. 1/640) of digitoxin, as regards pharmacological action.

Digitonin.—As has been proved by Böhm, digitonin does not act on the heart. It has, therefore, not found any use in therapeutics. On the other hand it has recently proved of physiological and chemical interest, as Windaus has used it in order to carry out a comparatively simple quantitative estimation of cholesterol, which is physiologically of so much importance.

Windaus discovered that digitonin formed with cholesterol in alcoholic solution an additive product which was practically insoluble in alcohol, consisting of one molecule of digitonin and one molecule of cholesterol:



For the quantitative estimation of cholesterin, the material to be examined is dissolved in 50 times the amount of boiling alcohol 95 per cent. and a 1 per cent. solution of crystallized digitonin in hot alcohol 90 per cent. is added so long as a precipitate is formed. After allowing it to stand for several hours, the precipitate of the digitonin-cholesteride which has resulted is collected in a Gooch crucible, washed with alcohol and ether and dried at 100° C. By weighing this the amount of cholesterin can be calculated by multiplying the amount of cholesteride obtained by 0.25. As the cholesterin esters do not react with digitonin, the method described can also be utilized for the separation of cholesterin and cholesterin esters. The insolubility of digitonin cholesteride also enables it to be used as a qualitative test for cholesterin; but this reaction is not so delicate as the color reactions usually employed for cholesterin.

The value and the utility of Windaus's method for the estimation of cholesterin as described above was experimentally confirmed by A. Lapworth. This author points out that after the precipitation of cholesterin, the cholesterin esters can be hydrolyzed by caustic potash and then estimated by precipitating the digitonin.

To be continued

TREATMENT OF TOXEMIA OF PREGNANCY*

By Jessie M. McGaven, M.D., of Portland, Ore.

TOXEMIA of pregnancy may manifest itself by the following symptoms: Salivation, neuritis, disturbance in vision, hyperemesis, cholemia or convulsions with coma. (Shick-
ele.)

In the early stage or in mild cases the diet is of first importance. Any food tending to favor catarrhal conditions of alimentary canal must be excluded to prevent possible injury to the liver cells. Appropriate hygienic conditions should be provided; exercise of the proper kind and amount, with instruction in regular, deep breathing to stimulate normal liver functioning as well as to aid in elimination of impurities by the lungs. Proper attire to avoid chilling the skin and pressure on the liver should be worn and an abundance of pure water should be taken internally and externally to secure regular functioning of the kidneys, intestines and skin.

The amount of nitrogen excreted as urea is diminished during pregnancy, while the amount excreted as ammonia is increased. This is called the "ammonia coefficient." In normal pregnancy this is from 4 to 5 per cent., while it may exceed even 40 per cent. in cases of toxemia.

Dr. John Byers, of Belfast, and Dr. W. Williams, of Boston, concur in the opinion that immediate evacuation of the uterine contents is imperative when the ammonia coefficient exceeds 10 per cent.

Dr. Wright, professor of Obstetrics of Toronto University, thinks many lives may be saved by not following this rule. He reported one case in which the ammonia coefficient was 14 per cent., in which the routine treatment failed to relieve the vomiting. The patient refused the proposed abortion. As morphine grn. ¼, had no effect, he gave grn. ½, followed in an hour by calomel grn. 1, which was given every hour until four grains had been given. Patient passed a satisfactory night and felt much better in the morning. The vomiting recurring the same treatment was followed for five nights with marked improvement, although the ammonia coefficient was still 8.2 per cent. By continuing smaller doses of morphine for a few nights longer, she was carried safely through to a normal termination. This is along the line of treatment advocated by the British obstetricians of half a century ago. Dr. Wright believes chloroform to be exceedingly dangerous in hyperemesis, and forcible dilatation with the emptying of the uterus at one sitting even more so.

Several cases are reported of cessation of the vomiting after 10 m. of adrenalin (1 per cent. sol.) had been given; also daily irrigation of the intestine with five quarts of salt solution with ice milk in one-half ounce by mouth doses as the only nourishment.

The Lenhartz treatment of peptic ulcer with modification to suit the case has given good results in some cases of hyperemesis. I have found some will retain buttermilk made from the lactose tablets, given in small quantity ice cold when even water is rejected. Hofbauer recommends the avoidance of narcotics in this condition.

Should the pulse exceed 100, Pinard advises terminating the gestation, as five of his patients developed neuritis with atrophic paralysis where the pulse was above 100. Saline transfusion before, during and after the evacuation of the uterus is a useful measure. No food is allowed until considerable quantity of water is retained without vomiting, when milk and water

* Read before Portland City and County Medical Society, *Northwest Med.*, Nov., 1912.

may be given until the pulse is normal. Pinard has had serious symptoms develop after an egg had been given before the pulse rate was normal.

The same general line of treatment for hyperemesis is indicated in cholemia, with close attention to the fetal heart. If symptoms do not improve and the child is viable, induction of labor should be produced in interest of child. If the fetal heart shows signs of death, pregnancy should be interrupted at once to save the mother, as the condition may have a sudden fatal termination. (Edgar.)

Hypothyroidism is thought to have some bearing on the toxic condition of pregnancy and when nausea, constipation, restlessness, headache, general irritability with increase in weight, especially fat, a tendency to slowing of the pulse, a decrease in the secretion of the skin with a drying of the skin are present, positive symptoms of subthyroid secretion are present. Small daily doses of thyroid extract are indicated—3 to 5 grn. Should this cause rapidity of heart, reduce the dose.

The routine remedies recommended in the text-books have not been mentioned, as we are all familiar with them.

Eclampsia. Prophylactic treatment: Reduce the metabolic process to the minimum and promote the elimination of fluids through the kidneys and not through the skin. (Steiger.) Avoid sweating the patient, as the blood is already too concentrated. Milk diet; free action of liver and bowels. If convulsions are pending, keep the patient quietly in bed in a darkened room, visitors excluded. Give castor oil by mouth and irrigate colon with quantities of sugar water in place of saline solution. Give potas. citrate, grn. xv, every 2 hours or sparteine grn. ii, every 4 hours, as a diuretic; glonoin to lessen arterial tension and increase diuresis. Apomorphine, grn. 1/15, promptly relaxes muscles, empties stomach and increases the action of the skin and kidneys.

Prof. Tweedy, of Dublin, is partial to morphine and atropine. He gives castor oil if the patient is able to swallow. If unconscious, stomach washing is done and some water and castor oil left in before removing the tube. The intestines are irrigated until water returns clear. A pint is left in bowels to be absorbed. Warm cataplasms are applied over kidneys but avoid sweating. Give infusion of sodium bicarbonate and repeat in 8 or 10 hours if patient is still unconscious.

Do not leave patient on her back, but

turn from side to side to allow saliva to escape. If breathing should suddenly stop draw her head over the edge of the bed; draw the jaw forward and practise artificial respiration, using abundance of oxygen to aid in the battle for recovery.

Zweifel recommends venesection. Dr. Ward, of Sloane Maternity, New York, uses chloroform and empties the uterus as soon as possible. Give veratrine to slow the pulse, chloral and sodium bromide per rectum.

NEW REMEDIES FOR 1912

ACETYLATED AMIDOAZOTOLUENE:—See Azodermin.

ACETYLCRESOTINIC ACID:—See Ervasin.

ACID ACETYLCRESOTINIC:—See Ervasin.

ACID METHYLPHENYLQUINOLINECARBOXYLIC:—See Paratophan.

ACID METHOXYPHENYLQUINOLINECARBOXYLIC:—See Isatophan.

ACID PHENYLETHYLBARBITURIC:—See Luminal.

ACTINOPHOR:—A mixture of 3 parts cerium dioxide and 1 part thorium dioxide.—Uses: As a Roentgen-ray diagnostic, and in treating gastric and intestinal affections.

ADAMON:—Borneol Dibromdihydrocinnamate.— $C_9H_7CHBr.CHBr.CO_2C_6H_5$.—White, odorless, almost tasteless powder insoluble in water, and melting at 75° C.—Uses: As sedative in nervous conditions where bromides indicated.

ALEUDRIN:—Alphadichlorisopropylalcohol, $(CH_2Cl)(CH_2O.CONH_2)(CH_2Cl)$.—White, odorless crystals melting at 82° C., and soluble in alcohol, but almost insoluble in water.—Analgesic and hypnotic.—Dose: As analgesic, 0.5 Gm.; as hypnotic, 1 Gm.

ALLANTOIN:—Obtained from uric acid by oxidation.— $CO(NH_2)_2.CO.CH.NH.CO.NH_2$.—Colorless crystals.—Soluble easily in hot water and alcohol.—Uses: To promote epithelial formation in ulcers and wounds.—Applied in 0.3–0.4% solutions.

ALPHADICHLORISOPROPYLALCOHOL:—See Aleudrin.

ALPHAGLYCOHEPTONICACIDLACTONE:—See Hediostit.

ALUMINUM CHLORATE:—See Prophylactic Mallebrin.

AMIDOAZOTOLUENE, ACETYLATED:—See Azodermin.

AMPHOTROPIN:—Hexamethylenamine Camphorate.— $C_6H_{14}(COOH)_2[(CH_2)_6N_4]_2$.—White, crystalline powder.—Soluble in cold, more easily in hot, water, and also in alcohol and chloroform.—Urinary antiseptic.—Dose: 0.5–1 Gm.

ANTIBERBERIN:—A rice extract prepared by a special process, and forming a black-colored, acid liquid.—Uses: In beri-beri.

ARGALDIN:—An albumen-silver preparation said to liberate formaldehyde when in contact with mucous surfaces.—Bactericide.—Uses: Diseases of the throat and urinary passages.—Applied in solution or ointment.

ARGATOXYL:—Silver Paraminophenylarsinate.—33.3% Ag, & 23% As.—Marketed in 10% olive oil suspension.—Uses: All septic conditions.—Dose: 3–4 Cc. of the suspension = 0.3–0.4 Gm. of the substance.

ARGENTARSYL:—A preparation of iron cacodylate and colloidal silver (0.05:10).—Uses: Malaria.

ARPHOALINE:—An albumen compound each gramme of which contains 0.006 Gm. of arsenic with phosphorus.—**USES**: Cancer.—**DOSE**: 0.25–0.1 Gm.

ASEBOTINE:—Glucoside from leaves of *Kalmia latifolia* and identical with that isolated from leaves of *Andromeda japonica*.

ASPIRIN "SOLUBLE":—See "Soluble" Aspirin.

AUROCHIN:—Quinine Paramidobenzoate.—Less bitter than usual quinine salts, and used like latter.—Particularly adapted for use in enteric injections of 1:10–15 sterilized solution.—**DOSE**: about one-fourth greater than of usual quinine salts.

AZODERMIN:—Acetylated Amidoazotoluene.—Light brick-red powder difficultly soluble in ether, more easily in alcohol, and freely in chloroform; also soluble in hot oils and fats.—**USES**: To promote epithelial formation like Scarlet Red R.

AZODOLEN:—A mixture of equal parts pellidol and iodolen (a compound of iodol and albumen).—Pale-yellow powder.—**USES**: As anti-septic, and to promote epithelial formation.

BENZENE PICRATE:—See Fortoline.

BENZOYL PEROXIDE:—See Lucidol.

BETAIMIDAZOLETHYLAMINE:—See Imido-Roche.

BETAIMIDAZOXYLETHYLAMINE:—See Histamine.

BLENNAPHROSIN:—A mixture containing a double salt of potassium nitrate and hexamethylenamine with extract Kava-Kava, and marketed in enteric capsules.—**USES**:—Gonorrhea, cystitis, and where santal oil is indicated.—**DOSE**: 2–4 capsules three daily.

BORNEOL DIBROMDIHYDROCINNAMATE:—See Adamon.

BRONCHISAN:—A 4% pyrenol solution used as an expectorant and sedative in whooping-cough, chronic bronchial catarrh, and in pulmonary cough.—**DOSE**: children, a teaspoonful 3–6 times daily; adults, a tablespoonful 3–6 times daily.

CALCIUM ACETYLSALICYLATE:—See Tylcalsin; "Soluble" Aspirin.

CALCIUM GLYCERINOLACTOPHOSPHATE:—See Sanocalcin.

CASEINHYDROL:—Mixture equal parts magnesium-perhydrol and casein-calcium.—**USES**: Glycosuria.

CELLOPHAN:—A cellulose product in form of transparent, thin, odorless, tasteless sheets.—**USES**: As a filtering medium, and for dialyzers; also for bandages, drainage of wounds, compresses, substitute for rubber goods, etc.

CEOLAT:—Cerium salts of fatty acids, and intended for the treatment of wounds.—Marketed as solution, dusting powder, and ointment.

CHAVOSOT: Parallylphenol, $C_6H_4.C_3H_5.OH$.—Aromatic, highly refractive liquid.—**BOIL**: 229° C.—Powerful Bactericide.—**USES**: In dentistry.

CHINEONAL:—Quinine Diethylbarbiturate.— $(C_6H_5)_2C.(CO)_2(NH).CO.C_{20}H_{24}N_2O_2$.—White, bitter crystals.—Soluble, difficultly in water, easily in alcohol and chloroform.—**USES**: Febrile infectious diseases, typhoid, influenza, neuralgia, whooping-cough, seasickness, etc.—**DOSE**: 0.6–0.75 Gm.

CHITENIN:—Oxidation product of quinine.— $C_{10}H_{22}N_2O_4 + 4H_2O$.—Used in malaria, but found inefficient even in doses of 1 Gm.

CINNABARSANA:—A cancer remedy, said to be a mixture of 40% water, 11.5% arsenic trioxide 24.5% cinnabar, and 24% powdered charcoal.

CLAVICEPSIN:—A new glucoside from ergot.— $C_{18}H_{34}O_{16}.2H_2O$.—Needles easily soluble in water more difficultly in alcohol, and insoluble in ether and chloroform, and melting at 91° C.

CODEONAL:—Mixture of 11.76% codeine diethylbarbiturate and 88.24% sodium diethylbarbiturate.—Colorless crystals melting at 85° C., and soluble in alcohol, chloroform, ether, and 30 water.—Sedative: Hypnotic.—**USES**: Insomnia due to pain, cough, etc.—**DOSE**: 1 tablet (in which form marketed) containing 0.02 Gm. codeine diethylbarbiturate and 0.15 Gm. sodium diethylbarbiturate.

COLATEIN:—A crystalline, phenolic principle obtained from Kola nuts.—Soluble in alcohol, acetone, methyl alcohol, and slightly in water.

COLLOIDAL RHODIUM:—Prepared electrolytically for subcutaneous or intravenous injection in infectious diseases.

COLLOIDAL TUNGSTEN:—Recommended instead of bismuth in Roentgen-ray therapy.—Black, odorless, tasteless powder.—As much as 25–80 Gm. may be given without fear of untoward results.

CRETAFORM:—Oxymethylcresoltannin.—Brownish-white, almost odorless and tasteless powder.—Insoluble in dilute acids and alkalis.—**USES**: In treatment of wounds.

DESPYRIN:—Described as the tartaric acid ester of salicylic acid.—**USES**: Instead of aspirin.

DIACETYLAMIDOAZOTOLUENE:—See Pellidol.

DIGIFOLIN:—An aqueous, sterile solution of active glucosides of digitalis leaf, marketed in ampuls; but also supplied in tablet form. Contains chiefly digitoxin.—1 Cc. standardized to equal 0.1 Gm. digitalis leaf.

DIPHENYLUREA:—Compound resembling phenylurea, and possessing feeble narcotic and sedative properties.

EMBARIN:—A 6.67% solution of sodium mercurisalicylsulphonate with 0.5% acoin added.—3% Hg.—Clear, yellow liquid, marketed in ampuls of 1.2 Cc. each, and constituting one dose which is to be injected subcutaneously.

ERVASIN:—Acetylresotinic Acid.—Quadrangular prisms, soluble in alcohol, ether, and chloroform, insoluble in water, and melting at 140–141° C.—**USES**: Antirheumatic.—**DOSE**: 0.5 Gm. in tablet (in which form marketed).

ETHYL PHENYL CINCHONINATE:—Yellowish, odorless, tasteless powder, easily soluble in organic solvents, but insoluble in water.—Melt at 59° C.—**USES**: To promote elimination of uric acid.—**DOSE**: 0.5–1 Gm.

ETHYL PHENYLDIBROMPROPIONATE:—See Zebromal.

EUFORMAL:—Compound of 18% formaldehyde and 82% colloidal dextrin.—**USES**: Foot and mouth disease of animals.

FAGARAMIDE:—Piperonylacrylic acid-isobutylamide, a nitrogenous substance obtained from the root-bark of *Fagara Xanthioides*.—Crystals, melting at 119–120° C.—No apparent action in small doses on warm-blooded animals; narcotic action on cold-blooded animals.

FAGOL:—Condensation product of creosote and formaldehyde.—White, crystalline, odorless powder.—Insoluble in water.—**DOSE**: 1.5–3 Gm.

FEJOPROT:—An organic iron-iodine-albumen compound in tablet form, each of 1 Gm., and containing 0.05 Gm. Fe and 0.05 Gm. I.

FORTOLINE:—Benzene Pierate.—Prepared by heating picric acid with benzene for a long time and distilling off the excess of benzene.—**USES**: For adding to gasoline to increase the explosive power of the latter for automobiles.

FULMARGIN:—A finely colloidal silver (almost in solution) prepared electrolytically.

- GLYCASINE**:—An ointment base consisting principally of alkali stearates and glycerin.—**Uses**: Chiefly as a lubricant for instruments and hands.
- GLYCERINCARBONIC ESTER**:—See Tricarbin.
- GONARGIN**:—A vaccine prepared from recent and various gonococci cultures.—**Uses**: Immunizing purposes.
- HEDIOSIT**:—Alphaglycoheptonicacidlactone.—Lustrous, trimetric crystals easily soluble in water, but difficultly in alcohol, and insoluble in ether.—**Uses**: As sweetener for diabetics.—**Dose**: Up to 30 Gm. per day.
- HEPATOXIN**:—A Japanese remedy said to be prepared from the liver of the globe-fish, and used in leprosy.
- HERMESOLINE**:—An oily solution (?) of mercuric chloride intended for intramuscular injection in syphilis in doses of 1-1.5 Cc.
- HEXAMETHYLENAMINE CAMPHORATE**:—See Amphotropin.
- HEXAMETHYLENAMINE SULPHOSALICYLATE**:—See Hexal.
- HEXAL**:—Hexamethylenamine Sulphosalicylate.— $(\text{CH}_2)_6\text{N}_4\cdot\text{SO}_3\text{H}\cdot\text{C}_6\text{H}_3(\text{OH})\text{COOH}$.—White crystals, easily soluble in water, very slightly soluble in alcohol.—**Uses**: Acute and chronic cystitis, bacterial diseases of urinary organs, pyelonephritis, uric-acid diathesis, etc.—**Dose**: 1 Gm. 3-6 times daily.
- HISTAMINE**:—Betamidazolethylamine.—**Uses**: As of pituitrin.
- HORMONAL**:—Peristaltic hormone, used in treatment of constipation.—**Dose**: 15-20 Cc. by intramuscular injection.
- HYCYAN**:—Mercury oxycyanide in tablet form, each containing 0.5 Gm.
- HYDROQUININE HYDROCHLORIDE**:—Methylhydrocupreine hydrochloride, $\text{C}_{20}\text{H}_{23}\text{N}_2\text{O}_2\cdot\text{HCl} + 2\text{H}_2\text{O}$.—White, bitter crystals easily soluble in water and alcohol.—**Uses**: As of quinine in malaria, trypanosomiasis, etc.—**Dose**: 0.6 Gm.
- IMIDO-ROCHE**:—Betamidazoethyamine in 1:1000 solution.—Possesses physiological properties like those of adrenaline.
- INSIPIN**:—Quininediglycol Sulphate.— $\text{O}(\text{CH}_2\text{CO}[\text{C}_{20}\text{H}_{23}\text{O}_2\text{N}_2])_2\cdot\text{H}_2\text{SO}_4\cdot 3\text{H}_2\text{O}$.—A white, odorless, tasteless, crystalline powder, insoluble in cold water or alcohol, but soluble in hot water or alcohol.—A "tasteless quinine," specially adapted for children's use.—1.5-2 Gm. insipin=1 Gm. quininehydrochloride in effect.—**Dose**: 0.2 Gm. in malaria in children.
- ISAPOGEN**:—A clear, syrupy liquid containing 6% iodine and 6% camphor, and used in rheumatic and subacute and chronic diseases in which iodine is indicated, and also in syphilitic and tuberculous processes.—**Dose**: 2-4 fl. dr. by intunction.
- ISATOPHAN**:—Methoxyphenylquinolinecarboxylic Acid.—Lemon-yellow, crystalline powder insoluble in water, but easily soluble in alcohol and alkalis.—**Melt**: 216°C .—**Dose**: 0.5 Gm.
- JAMBULOL**:—A phenolic compound, $\text{C}_{13}\text{H}_3\text{O}_4(\text{OH})_5$, found in jambul seeds, and in rhubarb.
- KREBISOTE**:—Stated to be a combination of creosote and bismuth.—Greenish-yellow powder.—**Uses**: As of iodoform, and also in eczema locally, and internally in dysentery.—**Dose**: 3-15 grains (0.3-1 Gm.).
- KRESATIN**:—Metacresyl Acetate, $\text{CH}_3\text{C}_6\text{H}_4\text{O}(\text{CH}_3\text{CO})$.—Colorless, oily liquid soluble in the usual organic solvents, but very slightly soluble in water.—**Uses**: Diseases of the nose, throat, and ear, either pure, or in oily or alcoholic solution as spray.
- LEUKOGEN**:—A vaccine consisting of an emulsion of dead staphylococci.—Marketed in ampuls of various strengths, each containing an accurately determined number of dead germs, i.e., 10, 25, 50, 100 or 500 millions per Cc.
- LITHIUM ACETYSALICYLATE**:—See Tyllithin.
- LUCIDOL**:—Benzoyl Peroxide.—**Uses**: Bleaching oils.
- LUETIN**:—Pure cultures of *Treponema pallida* grown by a special process.—Used as a skin test for syphilis.
- LUMINAL**:—Phenylethylbarbituric Acid.— $(\text{C}_6\text{H}_5)_2(\text{C}:\text{CO}\cdot\text{NH})_2\cdot\text{CO}$.—White, odorless, slightly bitter powder.—Soluble in organic solvents but insoluble in water.—**Melt**: $170-172^\circ\text{C}$.—**Uses**: Hypnotic.—**Dose**: 0.1-0.4 Gm.
- LUMINAL-SODIUM**:—Sodium Phenylethylbarbiturate.—Crystalline powder, easily soluble in water, and hence particularly adapted for hypodermic and rectal injection.—**Uses and Doses**: As of Veronal.
- MELUBRIN**:—Sodium Phenylidimethylpyrazolonamidomethanesulphonate.— $\text{C}_6\text{H}_5\cdot\text{N}\cdot\text{CO}\cdot\text{NCH}_3\cdot\text{C}\cdot\text{CH}_3\cdot\text{C}\cdot\text{NH}\cdot\text{C}_6\text{H}_4\cdot\text{SO}_3\text{Na}$.—White powder.—Soluble in water.—Antipyretic.—**Dose**: 0.5-1 Gm.
- MERCURY GUAIACOLSULFONATE**:— $\text{Hg}(\text{C}_6\text{H}_5\cdot\text{OH}\cdot\text{OCH}_3\cdot\text{SO}_3)_2$.—Brown crystals.—33% Hg.—Soluble in water.—**Uses**: Syphilis.—**Dose**: 0.02 Gm. by intramuscular injection, the dose being gradually increased to 0.06 Gm. Also given internally in doses of 0.06-0.12 Gm.
- MESBÉ**:—An African plant, *Sida rhombifolia* Cublignitziana, recommended as a remedy for tuberculosis, for which it is used by the aborigines.
- METACRESYL ACETATE**:—See Kresatin.
- METHOXYPHENYLQUINOLINECARBOXYLIC ACID**:—See Isatophan.
- METHYLATOPHAN**:—See Paratophan.
- METHYLHYDROCUPREINE HYDROCHLORIDE**:—See Hydroquinine Hydrochloride.
- METHYLPHENYLQUINOLINECARBOXYLIC ACID**:—See Paratophan.
- MOLYFORM**:—A molybdenum compound of unstated composition, and used as a bactericide and antiseptic in surgical gynecological and dermatological affections.—Fine, white powder.—Soluble: 10 water.—Applied in 5% ointment, 3% aqueous solution, and also as gauze and powder.
- MORPHINE AND NARCOTINE MECONATE**:—See Narcophin.
- MYOKARDOL**:—Tablets containing 0.15 Gm. caffeine citrate and 0.85 Gm. ergotin, each, and given subcutaneously in cardiac neuroses and inflammation, and arteriosclerosis.
- MYSTIN**:—Milk preservative consisting of formaldehyde and sodium nitrite.
- NARCOPHIN**:—Morphine and Narcotine Meconate, $\text{C}_{22}\text{H}_{23}\text{NO}_7\cdot\text{C}_{17}\text{H}_{19}\text{NO}_3\cdot\text{C}_7\text{H}_7\text{O}_7 + 4\text{H}_2\text{O}$.—Easily soluble in water and in 25 alcohol.—Hypnotic.—**Dose**: 0.03 Gm.
- NEOSALVARSAN**:—A compound of salvarsan and sodium formaldehydesulphoxylate.—Yellow powder, easily soluble in water.—1.5 Gm. neosalvarsan=1 Gm. salvarsan.—**Uses**: Syphilis, etc., like salvarsan.
- NEUROFEBRIN**:—A mixture of equal parts neuronal and antifebrin.
- NINHYDRIN**:—Triketohydrindenhydrate.—Reagent for albumen, peptone, polypeptides and aminoacids, and also for diagnosing pregnancy.
- NOR-ATROPINE**:—An alkaloid found with norhyoscyamine in various Solanaceae.—Crystals melting at 113°C .—Mydriatic, about one-eighth the strength of atropine.

NOR-HYOSCYAMINE.—An alkaloid, found in *Scopolia japonica*, *Datura Metel*, and other Solanaceae.— $C_{16}H_{23}NO_3$.—Crystals melting at 140° C.—Mydriatic, about one-eighth the strength of hyoscyamine.

NOVATOPHAN.—Ethyl ester of methylated atophan.—Almost colorless, tasteless powder, insoluble in water.—Uses: Gouty diathesis and articular rheumatism.—Dose: 0.5–1 Gm.

NOVIFORM.—Tetrabrompyrocatechinbismuth, $Bi(C_6Br_3O_2)OH$.—Yellow, odorless, tasteless powder.—About 32% bismuth oxide.—Insoluble in water.—Uses: Pure or with talcum, as dusting powder, or in ointments, in eye affections and dermatology like iodoform.

NOVOJODIN, SPECIAL.—See Special Novojodin.

OMNOPON.—See Pantopon.

ORTHONAL.—A sterilized mixture of 0.5% cocaine and 0.75% alypin solutions to which 6% of a 1:10000 adrenaline solution is added.—Uses: Anesthesia in Schleich's infiltration or Oberst's method.—Dose: 1–3 Cc. subcutaneously.

ORTIZON.—Stated to be a solid permanent hydrogen peroxide prepared with the aid of urea, and intended for hygienic and pharmaceutic purposes.

OXYMETHYLCRESOLTANNIN.—See Cretaform.

PANTOPON.—Omnozon.—A mixture of the hydrochlorides of the total opium alkaloids.—1 Gm. = 5 Gm. opium = 0.5 Gm. morphine + 0.4 Gm. all other opium alkaloids.—Dose: About double that of morphine.

PARAALLYLPHENOL.—See Chavosot.

PARATOPHAN.—Methylatophan; Methylphenylquinolinecarboxylic Acid.— $C_7H_5O_3N$.—Yellow powder, soluble in alcohol, ether, chloroform, and alkalies, but insoluble in water and melting at 228° C.—Uses: To increase uric-acid secretion.—Dose: 30–45 grains (2–3 Gm.).

PARAOXYPHENYLETHYLAMINE.—See Systogene.

PELLIDOL.—Diacetylamidoazotoluene, $C_6H_4-CH_3-N_2-C_6H_3-CH_3-N$ ($C_6H_3O_2$).—Pale reddish-yellow powder, soluble in organic solvents but insoluble in water; also soluble in fats and oils.—Melt: 65° C.—Uses: To promote epithelial formation, like Biebrich Scarlet R.

PERGENOL.—A "solid hydrogen peroxide" consisting of a mixture of sodium perborate and sodium bitartrate.—Crystalline powder which yields H_2O_2 , boric acid, and neutral sodium tartrate on contact with water.

PHENYLETHYLBARBITURIC ACID.—See Luminal.

PHENYLUREA.— $C_6H_5-NH.CO.NH_2$.—Brownish-white, fluorescent needles.—Soluble in boiling water, alcohol, or ether.—Hypnotic.

PHOBROL.—Described as a 50% aqueous solution chlormetacresol in potassium ricinoleate.—Disinfectant in 0.5–1% solution.

PIPERONYLACRYLICACID-ISOBUTYLAMIDE.—See Fagaramide.

POLYLAKTOL.—A mixture of iron-somatoses with carbohydrates, maltose, and galactose.—Lactagogue.—Dose: Teaspoonful.

PROPHYLACTIC MALLEBRIN.—Aluminum Chlorate.— $Al(ClO_3)_3 \cdot 6H_2O$ (or $9H_2O$).—Uses: Prophylactic in tuberculous and other infectious diseases, and as bactericide in streptococci anginas, ulcerous stomatitis, and diphtheria.—Applied as 1% solution as gargle, and as 0.5% solution as spray by inhalation in whooping-cough and tuberculous processes of lungs and larynx.

PROTHAEMIN.—Chocolate-brown, odorless, tasteless powder containing organically combined iron and phosphorus.—Uses: Anemia, chlorosis, neurasthenia, and nutrient in

debility.—Dose: One or two heaping teaspoonfuls.

PYROTHEN.—Stated to consist of 60 parts cresol, 60 parts 60% sulphuric acid, and 15 parts fuming sulphuric acid.—Yellow, syrupy liquid.—Disinfectant.—A solid Pyrothen is also made from 25 parts liquid concentrated by evaporation, 18.7 parts sodium sulphate, and 10 parts sodium sulphite, and forms a reddish powder.

QUININE DIETHYLBARBITURATE.—See Chineonal.

QUININE PARAMIDOBENZOATE.—See Aurochin.

QUININEDIGLYCOL SULPHATE.—See Insipin.

RHODALZID.—An albumen-sulphocyanate compound claimed to be a nontoxic remedy for treating and preventing caries, diseases of the mucous membranes, gout, arteriosclerosis, etc.—Marketed in form of tablets of 0.25 Gm. each (=0.048 Gm. combined sulphocyanic acid), one being given 3 times daily.

RHODIUM COLLOIDAL.—See Colloidal Rhodium.

SANOCALCIN.—Calcium Glycerinolactophosphate.—White, amorphous powder, soluble in water.

—Uses: Chronic, infectious diseases.—Dose: $1\frac{1}{2}$ –8 grains; also given subcutaneously or intravenously in 1% solution.

SILVER PARAMINOPHENYLARSINATE.—See Argatoxyl.

SODIUM ACETAMINOMERCURICBENZOATE.—See Toxynon.

SODIUM DIAMINODIPHENYLMERCURIC DIACARBOXYLATE.— $(NH_2)(COONa):C_6H_5.Hg.C_6H_5:(NH_2)(COONa)$.—White to yellowish, crystalline powder easily soluble in water.—38% Hg.—Uses: As mercurial.

SODIUM DINITRODIPHENYLMERCURIC DIACARBOXYLATE.— $Hg:(C_6H_5:[COONa.NO_2])_2$.—Yellow, crystalline powder, easily soluble in hot water.—Uses: As mercurial.

SODIUM METHYLAMINOBOZOYL TETRABORATE.—See Viraltan.

SODIUM PHENYLDIMETHYLPYRAZOLONAMIDOMETHANESULPHONATE.—See Melubrin.

SODIUM PHENYLETHYLBARBITURATE.—See Luminal-Sodium.

"SOLUBLE" ASPIRIN.—Calcium Acetylsalicylate, $(OCOCH_3)_2:(C_6H_4)_2:(COO)_2.Ca+2H_2O$.—White powder, easily soluble in water.—Uses: As of aspirin.

SPECIAL NOVOJODIN.—Mixture of hexamethylenamine diiodide and tricarbamine.—Fine, orange-yellow powder, insoluble in the usual solvents.—Uses: Antiseptic.

STYPTASE.—A mixture of tannin-calcium chlorate with hamamelis and fluorides used in solution and in tablet form in hemorrhages of all kinds.—Dose: Of solution, 1–2 teaspoonfuls; tablets, 1–2 three or more times daily.

SULFOFORM.—See Triphenylstibinsulphide.

SYSTOGENE.—Paraoxyphenylethylamine, $HO-C_6H_4-CH_2-CH_2-NH_2$; Uteramine; Tocotine.—A nontoxic base the hydrochloride of which forms nacreous crystals soluble in water, and used instead of ergot and adrenaline.—Dose: 0.25–1 Cc. of a 0.2% solution subcutaneously.

TANNAPHTHOL.—Condensation product of tannin albuminate and benzonaphthol.—Uses: Diarrhea, dysentery, etc., externally, as dusting powder for wounds.—Dose: 0.5–1 Gm.; children 0.1–0.5 Gm.—Applied in 10% ointment or 33 $\frac{1}{3}$ % dusting powder.

TETRABROMPYROCATECHINBISMUTH.—See Noviform.

TETRAHYDROPAFAVEROLINE HYDROCHLORIDE.—A vasodilator used in arteriosclerosis, dyspneic conditions, and heart failure.—Dose: $\frac{1}{2}$ grain.

TOCOSINE.—See Systogene.

TOXYNON.—Sodium Acetaminomercuricbenzoate.—48% Hg.—Uses: Mercurial.

TRICARBIN:—Glycerincarbonic Ester, $C_6H_{10}O_6$.—White, odorless, tasteless powder, melting at $149^\circ C$.—**USES:** As diluent of active drugs; has no medicinal action.

TRIKETOHYDRINDENHYDRATE:—See Ninhydrin.

TRIPHENYLESTIBINSULPHIDE:—Sulfoform.— $Sb(C_6H_5)_3S$.—The sulphur is easily liberated and becomes effective in nascent form.—**USES:** In 10% oily solution or ointment in diseases of the scalp.

TRIVALEN:—A compound of valeric acid with morphine, caffeine, and cocaine.—Exhibits the combined analgesic and tonic effects of the alkaloids.—1 Cc. of the preparation (constituting the subcutaneous dose) contains 0.02 Gm. morphine valerate, 0.003 Gm. caffeine valerate, and 0.005 Gm. cocaine valerate.

TRYPAROSAN:—A halogenized parafuchsine.—**USES:** Sleeping-sickness.—Dose: 0.1–1 Gm. 4–8 times daily.

TRYPASAFROL:—The provisional name for a member of the safranin group of aniline dyes, and which is believed to be effective in preventing trypanosomiasis infection.

TUNGSTEN, COLLOIDAL:—See Colloidal Tungsten.

TYLCALIN:—Calcium Acetylsalicylate.—**USES:** As of aspirin.—Dose: 0.5 Gm.

TYLLITHIN:—Lithium Acetylsalicylate.—**USES:** As of aspirin.—Dose: 0.5 Gm.

UTERAMINE:—See Systogene.

VANADARSIN:—A yellow, odorless, stable, 1:1000 solution of a vanadium arsenic compound exhibiting the combined action of its constituents.—Dose: 5–10 drops before meals.—Subcutaneously, 1 Cc. of a solution containing 0.002 Gm. of the substance.

VERONACETIN:—Tablets, each two of which contain 0.3 Gm. sodium diethylbarbiturate, 0.25 Gm. phenacetin, and 0.025 Gm. codeine phosphate.—Hypnotic, sedative.—Dose: 1–2 tablets.

VIRALTAN:—Sodium Methylaminobenzoyltetaborate.—Antigonorrheic.—Dose: 15 Gm.

ZEBROMAL:—Ethyl Phenylidibrompropionate.— $C_6H_5(CHBr)_2.COO.C_2H_5$.—White, crystalline powder of cinnamon odor and taste, easily soluble in ether and chloroform, difficultly in alcohol, and insoluble in water.—Melt: $74-75^\circ C$.—**USES AND DOSES:** As of sodium bromide.

THE ROENTGEN RAYS IN SARCOMA

According to the latest statistics sarcoma will be cured by the application of the X-rays in 18 per cent, considerably improved in 57 per cent., and not influenced in 25 per cent. Unfortunately, the time of observation in most of the cases reported as cured is usually not more than two years. Two cases with a longer record are reported by Max Levy Dorn. In one, lympho-sarcoma of the neck, treatment was begun 1905 and carried through until the tumors had disappeared. In 1909 there was an enlargement of the glands in the groin without recurrence in the neck. These glands also disappeared with treatment and at present the patient is entirely free from tumors. The second case pre-

sented a periosteal sarcoma of the thigh and consent to an operation could not be obtained. Five years and seven months have elapsed since treatment and the patient has remained perfectly well. Though no pathological specimens were here obtained, there was no question as to the diagnosis since the X-ray findings were characteristic.—Berl. klin. Woch., Jan. 1, 1912.

CARCINOMA OF THE ESOPHAGUS

Reviewing a recent article by von Kuester on carcinoma of the esophagus, E. H. Goodman writes that as regards the degree of malignancy, one cannot make the hard and fast rule that the scirrhus form is relatively the more benign, as is often said of tumors of other structures. It is true that the medullary form grows more rapidly, invades the surrounding tissue more quickly, has greater tendency to metastasize, and as a result of the hemorrhage and toxins, leads sooner to cachexia; but with all this there is not the interference with food ingestion such as is seen in the scirrhus cancer.

Of the two forms, the medullary interferes the less with the activities of the patient, but there are no statistics to show what the duration of life is with either form.

Since the hard variety is more common, Kuester queries whether it is not possible to convert it into the medullary form, and then do away with gastrostomy with its attendant misery and mental effect. He has used, for two years, fibrolysin and bougies. Twice a week the patients received an ampule of fibrolysin (2.3 Cc.) subcutaneously in the epigastrium, and twice a week bougies were used. The author selected a whalebone bougie, and later employed the Trousseau sound. The olive tips of the latter were between 5 to 15 mm. in diameter. Any irritation of the tumor is avoided by the soft bougie, and a larger tip is only used when the previous one has been introduced with ease. Eight cases were treated in this way, and all obtained welcome respite from their sufferings.

The author states that although the use of fibrolysin in these cases is not without danger, as perforation may follow its employment, in extreme cases such as these, however, the danger should be disregarded, for the object is not to prolong life and its necessary suffering, but to make the few remaining days or weeks of the patient's deplorable existence as comfortable as possible.—Progressive Medicine, Dec., 1912.

Progress in Materia Medica and Therapeutics

BLINDNESS DUE TO METHYL ALCOHOL

Methyl alcohol, still used to some extent to adulterate the cheaper grades of liquors is an intense poison which does not however, affect all individuals in the same way. Thus, Harnack states that after a certain amount, 40 per cent. of the patients will die, 20 per cent. will become permanently blind and 40 per cent. will recover completely. Intestinal symptoms will be present in all. The extreme toxicity is not due to the alcohol as such, but is caused by its slow oxidation to formic acid, which also takes place in the nervous system. The ordinary alcohol is not poisonous, since it is much more rapidly burnt up to carbonic acid and water. Other drugs giving rise to blindness in a manner similar to methyl alcohol are nitrous acids and certain arsenic compounds, such as atoxyl. The blindness caused by quinine, cocaine and filix mas, on the other hand, is not caused by chemical processes, but is generally induced by a severe spasm of the retinal vessels, leading to occlusion of the vessels and atrophy of the retina.—Muench. med. Woch., Sept. 3, 1912.

TREATMENT OF CHRONIC GASTRIC STASIS

In motor insufficiency of the stomach owing to perigastritis, carcinoma, adhesions, or other organic cause, an operation cannot always be done. In such cases, it has been customary to recommend daily lavage of the stomach, in order to remove the stagnating contents. This treatment is, however, very inconvenient and may even be actually dangerous. More recently, simple expression has been advised, but this also requires passing the stomach-tube. Dr. Matthias Gockel lays great stress upon proper diet and proper antacid and anti-fermentative treatment. The latter, he believes, is best accomplished by using the 25 per cent. magnesium-perhydrol. This preparation is made up of 25 parts of magnesium peroxide and 75 parts of pure magnesium oxide. When mixed with stagnating stomach contents, nascent oxygen is at once set free and acts as a deodorant and anti-fermentative. The magnesium oxide unites with the acids present to form magnesium phosphate, chloride, carbonate lactate and sulphide. At the same time, the gases present are readily absorbed so that

the hydrogen sulphide reaction can no longer be obtained. Theoretically, therefore, the preparation is an ideal one for the conditions mentioned and experiments in the laboratory with foul stomach contents have proven that the preparation really does what is expected of it. The dangers of auto-intoxication are much diminished; there will be less irritation of the mucous membrane of the stomach and hence less danger of spasm. Inasmuch as the magnesium salts are laxative, the constipation is usually also corrected. Clinically, the author found less frequent attacks of pyloric spasm. The amount of urine was increased and the thirst was less intense. The patients no longer complained of distress in the gastric region, the eructations and vomiting were checked and the bowels generally moved without the use of cathartics. Most of the benign cases increased in weight and even in carcinoma there was considerable improvement at first. The author believes that in chronic motor insufficiency, the administration of magnesium-perhydrol will do away with washing out the stomach in most cases. The dose is a teaspoonful three to four times a day, in the afternoon and late in the evening and at night. If the bowels move too freely, morphine may be given.—Med. Klinik, 1912, No. 30.

LACTIC ACID IN PSORIASIS

J. M. Winfield, of Brooklyn, says that, while the parasitic theory of psoriasis has much in its support, the belief that this disease is the expression of some disturbance in metabolism seems to be nearer to the solution of the problem. Acting on this supposition he has for some years been treating his patients with lactic acid and colonic irrigation assuming that the intestinal auto-intoxication was an etiologic factor of the disease. Lactic acid disinfects the alimentary canal by its anti-bacillic action; colonic irrigation washes out decomposing matters, stimulates peristalsis, improves the intestinal circulation, relieves passive inflammatory conditions, and increases the skin resistance by improving general health. Analysis of his cases, forty in number, is given. In twenty-three cases the attack was cured and in sixteen there was

improvement. Thirty of the cases had only lactic acid and irrigations, in the other ten chrysarobin ointment was also used. The general results were far better in his experience than when the other well-known measures were employed. Two of the cases are briefly reported.—*Jour. A. M. A.*, Aug. 10, 1912.

LUMINAL AS ANTISPASMODIC IN SINGULTUS

Prompted largely by the results obtained by Hauptmann ("Muench med. Woch." 27, viii, 912) with the new hypnotic luminal in a case of epilepsy, E. Calderon, of the University of Salvador, C. A., tried it in a case of persistent singultus and in which all the usual remedies had been employed without avail.

The patient was a man sixty-two years old, of fine physique, and of temperate habits. Last May he complained of frequent micturition, stating that about five years before he had suffered from vesical calculi. Following a tonic, mineral water and hot sitting baths he improved rapidly. In October he had an attack of bronchitis. On the fifth day of treatment he was attacked with slight hiccoughs after spells of coughing. A mustard plaster was applied to the pit of the stomach and codeine and aq. lauroceraceae mixture administered every two hours to relieve the cough. The following day potassium bromide in large doses was without results. The patient still hiccoughed continuously. On the seventh day an injection of 0.01 Gm. morphine and 0.001 Gm. atropine was made. The following day there was frequent micturition. The residual urine was drawn off with soft rubber catheter and the bladder washed with a 2% boric acid solution. Potassium bromide discontinued and a pill containing 0.06 Gm. zinc valerate and 0.02 Gm. ext. belladonnæ given every three hours. Hiccoughs greatly aggravated. Compression of both phrenic nerves also without success. The next day the bladder was again washed and the urine became normal but the patient was very weak and exhausted. He was given an injection of morphine and atropine and the zinc and belladonna pill continued. The following day he was given three drops of amyl nitrite to inhale every two hours but without results. On the eleventh day the purulent sputum was increased and kreosotal 1.5; bals. tolutani 8.0; vitellum ovi unius ut fiat emulsio; syr. codeinæ 40.0; aquae 160 in tablespoonful doses every four hours was given. After an injection of 0.02 Gm. morphine with 0.001 Gm. atropine the hiccoughs stopped for a short time. Refusing

amyl nitrite and morphine the following day he was given 0.15 Gm. luminal in hot water which stopped the hiccoughs and gave him a good night's sleep. The hiccoughs returning the following day he was given 0.2 Gm. luminal and had another good night. On the following day he had slight attacks after coughing and at 9 P. M. he was given .3 Gm. luminal with the desired effect. The patient has not had any recurrence of hiccoughs.—*Pacific Med. Jour.*, Dec., 1912.

DOSE OF DIGITALIN

Henry Beates, Jr., of Philadelphia, in a recent communication writes, "In the matter of Digitalin German Merck, which is, at last, beginning to have its value recognized, and to be used by the profession generally, I again desire to call attention to the necessity of directing, for its subcutaneous use, *dilution*. In emergency cases where from one-quarter to even three grains are occasionally indicated, and to avoid abscesses and cellulitis, it is necessary to dissolve the remedy in about twenty-five Cc. of normal salt solution. One-quarter to one-half grain doses do not irritate if diluted with 10 Cc. When the profession realizes that this valuable remedy frequently prevents collapse and death in diseases like pneumonia and typhoid fever, and from profound surgical shock, its employment under these conditions will become very much more general, and, doubtless, lives would be frequently saved which would otherwise be lost."

TREATMENT OF GONORRHEAL RHEUMATISM

C. G. Cumston, of Boston, writes that it is important to resort to prophylactic treatment of gonorrheal rheumatism when commencing treatment of a fresh case of clap, more particularly so if the patient has had gonorrheal rheumatism in former infections. To accomplish this it is well to order from five to ten grains of salol, four times daily, after meals and at bedtime. This has succeeded well in the author's hands upon several occasions. In one case, the patient, aged 35 years, had had two gonorrheal infections, the last five years ago and on both occasions severe tenosynovitis developed of the extensor tendons of both feet. He sought advice within twelve hours after the first symptoms of his third offence. He was placed on ten grains of salol four times daily; he rapidly recovered under local treatment for the urethritis and not the slightest symptoms of gonorrheal rheumatism developed.

If one, by judicious local treatment when the case is seen within the first forty-eight hours, can limit the spread of the infection to the anterior urethra, systemic infection giving rise to gonorrheal rheumatism, is most unlikely to occur.

The treatment of gonorrheal tenosynovitis, which is the mildest form of gonorrheal rheumatism, consists in rest of the parts affected and, if the pain is intense, local bloodletting often works like a charm. Although this may seem like seventeenth century practice, it nevertheless, is a measure not to be overlooked. Locally, the limb over the involved tendons is to be covered with the following paste, this to be covered by a flannel roller bandage:

Methyl. Salicylatis	10.0 Gm.
Zinci Oxidi	3.0 Gm.
Adipis Lanæ	50.0 Gm.

M. ft. unguentum.

Salol given subcutaneously appears to hasten the cure. The author prescribes it as follows:

Salolis.	
Chloroformi	1.0 Gm.
Ol. Amygdalis	8.0 Gm.

M. Sig.: Ten Cc. four times daily in subcutaneous injection.

When the acute symptoms have subsided, massage will complete the cure, preventing the formation of adhesions.

The treatment of acute gonorrheal arthritis is often a tedious affair. If there is fluid in the joint, it should be removed by incision and the joint freely flushed out. The incision is closed without drainage and the limb properly splinted. Massage and passive motion should be begun very early, with the outcome that an almost perfect functional result is obtained.

When there is no fluid in the joint, it is more probable that the process is extra-articular and seated in the fibrous structures surrounding the joint. In this case the treatment described for tenosynovitis is to be resorted to. The vaccine treatment will be found of utmost use in these cases, especially when they run a protracted course.

In treating the chronic form of gonorrheal arthritis, the first indication is to find the focus of infection giving rise to it, otherwise no treatment will be of avail. If the prostate is the seat, the usual treatment of chronic prostatitis is indicated, and when the prostatic lesion is cured, the rheumatism will disappear.

When the seminal vesicles are involved, massage, or vesiculotomy if necessary, must be carried out. The vaccine treatment will find its greatest use in these cases. On general principles, personal hygiene must

be attended to; anemia, if it exists, is to be treated, and a nutritious and nonstimulating diet ordered.—N. Y. Med. Jour., Sept. 28, 1912.

DIPLOSAI IN ANGINA AND RHEUMATIC AFFECTIONS

The action of diplosal in the treatment of angina, with special reference to acute articular rheumatism, is described in detail by O. Braun. He treated 33 cases of angina, including some of a diphtheritic nature, with large doses of diplosal. The patient was given a daily dose of 3 grammes (45 grains) in the course of 15 minutes, combined with the administration of large quantities of elder-flower tea, after which he was well covered up and allowed to perspire for two hours. As a result of this measure, the difficulty in swallowing was usually much relieved or disappeared entirely. This treatment was repeated on the following day. The author considers that the constant good result of this treatment was primarily due to the diplosal medication, as the employment of other salicylic preparations was not equally successful. The author also calls special attention to the prophylactic value of diplosal. For whereas other cases of angina were followed by severe articular rheumatism, lasting for weeks, this was absent in several cases investigated by Braun in which diplosal had been used for the treatment of angina.

R. Massalongo and U. Gasperini refer to a number of cases which show that diplosal develops a prompt antirheumatic and analgesic action in acute and chronic articular rheumatism, in muscular rheumatism and in neuralgia occurring in a rheumatic subject, even though diaphoresis and temperature are but little or not at all influenced. The compatibility of the preparation and the possibility it affords of introducing large amounts of salicylic acid into the system without harmful by-effects, should, in the author's opinion, in time provide a much wider range of indications for diplosal. This is confirmed in communications by L. Moschetti, who prescribed the preparation with good results in gonorrhea. When an abortive cure is impossible, the author prefers the internal administration of diplosal in the early stages of acute gonorrhea, as in these cases injections may lead to inflammatory symptoms. The preparation proved a most useful urinary disinfectant, which, when administered 6 times in doses of 0.5 gramme (7½ grains) a day, soon cleared the urine and relieved

the burning pains. Disturbances of the digestive tract were never observed. After the early inflammatory symptoms had subsided, the author began the local treatment simultaneously with the administration of balsams.—E. Merck's Ann. Report, vol. XXV.

NEOSALVARSAN LOCALLY IN PARENCHYMATOUS KERATITIS

It is a well-known fact that neosalvarsan, administered in the usual way, has a pronounced effect upon most specific lesions, but that it is often ineffectual in the treatment of parenchymatous keratitis, probably because it is difficult for the drug to reach the lymph-spaces of the cornea. Experimentally, it had been shown that a 2½ per cent. solution of neosalvarsan does not irritate the conjunctiva of rabbits, so there seemed no objection to try the local application of the drug. In the case observed by L. Rosenmayer energetic mercurial treatment did not prevent the extension of the process to the second eye. The author then applied a few grains of the drug to one eye and instilled a few drops of a 2 per cent. solution into the second eye. The extension of the process was at once checked in both eyes and the cornea soon commenced to clear up. It may be an advantage to apply the neosalvarsan suspended in an oily solution of atropine as decomposition of the drug is prevented in this way.—Muench. med. Woch., Nov. 5, 1912.

EXPERIENCE WITH LUMINAL

Luminal has been employed by Kino in 25 patients, using 450 single doses in all. Most of the patients suffered from nervous insomnia, excitation and psychic unrest. The largest single dose given was 0.4 Gm. and the largest daily dose 0.6 Gm. These relatively small doses were generally effective, probably because the patients had not been accustomed to other hypnotics. An effect was generally seen within one hour. Where other hypnotics had not been given previously, sleep lasted seven to eight hours and the following morning there was a slight somnolency which rapidly passed off. Where there was merely a change from another hypnotic to luminal, the sleep lasted only two to four hours, but was refreshing and satisfying and there was less sleepiness the next morning. The drug was given by mouth and was invariably taken without resistance. The urine, pulse, blood-pressure and the gastro-intestinal tract were not influenced in any way. The effect of the drug was particularly pronounced in epilepsy. The bromides could gradually be re-

placed by luminal, with the result that the attacks became very much less frequent or disappeared altogether. A cumulative effect was not seen and the urine remained free from albumin even where the patient took the drug for a very long time. It was never necessary to increase the dose, and, when the drug was discontinued, the attacks promptly re-appeared. It thus seems as if the drug is of real value in the treatment of epilepsy. Prof. M. Rosenfeld is also well pleased with the results he has obtained with luminal. He uses no more than 0.2 to 0.3 Gm. at first, but states that later as much as 0.5 to 0.6 Gm. may be given if necessary. The sodium salt is suitable for subcutaneous use in doses of 0.2 to 0.3 Gm. 0.3 to 0.4 Gm. of the drug correspond in action to 0.5 Gm. veronal or medinal. After-effects are very rare, and as much as 0.4 to 0.5 Gm. has been given daily by the author for three months without any undesirable symptoms. The indications are neurasthenia and psychoses and any condition of excitation or insomnia in the insane. Where there is pain, it is possible to reduce the opiate with this drug, particularly if administered subcutaneously. It is also probable that it will do a great deal of good in the withdrawal of morphine. After-effects seen with large doses were slight somnolency and lack of co-ordination such as are also seen with veronal. When given for a long time, it is desirable to omit the drug occasionally for a few days. Cumulative effects, if they occur, may be avoided by giving the patients plenty of water with sodium bicarbonate. In every case, the initial dose should be small.—Therap. d. Gegenwart, Sept. and Oct., 1912.

USES OF THORIUM X

Thorium X may be used internally in suitable concentration or may be injected intravenously. Numerous experiments have shown that it causes a pronounced fall in blood pressure which lasts for a long time, hence the element may be destined to play an important rôle in the future in the treatment of arteriosclerotic conditions and heart disease. Some authors claim good results in gout and chronic rheumatism. In malignant tumors, the substance has been injected directly into the growth, but most authors report negative results. Great care is necessary and several fatal cases have already been reported. The symptoms of intoxication are those of severe gastrointestinal disturbances with diarrhea, colics and the vomiting of blood. An extreme leucopenia develops and at autopsy the changes of a hemorrhagic diathesis are

found. G. Klemperer and H. Hirschfeld report on several cases of blood disease that had been treated with thorium X. The leucocytes were diminished and the spleen was considerably decreased in size in six out of nine cases of true leukemia. Good results were also seen where the X-rays failed to improve the patients. Three cases of pernicious anemia were considerably improved, but in four there was very little effect. In the latter disease thorium X hardly presents any advantages over arsenic, but may yet be effectual where arsenic fails. In a general way, the author advises that the patients be first treated with arsenic. If this fails, they should receive subcutaneous injections of tartar emetic, 1 to 5 mg. and finally, as a last resort, Thorium X.—Therap. d. Gegenwart. Aug. 1912.

SUBLIMATE BANDAGE AND DIONIN AS SUBSTITUTES FOR OPERATIVE PROCEDURES ON THE EYE

In many serious cases of eye disease, where an operation would ordinarily be indicated, much good often results from the use of dionin. Thus, R. Kaz mentions one severe case of glaucoma where the consent to an enucleation could not be obtained. The eye-ball was of stony hardness, there was hypopyon and keratitis and the pains were so severe that the patient could not sleep. No improvement was noticed until a salve containing $\frac{1}{2}$ per cent. eserine and 5 per cent. dionin was prescribed. The following night the patient could sleep again and steady improvement followed. In many cases, however, it is better to prescribe the drugs in the form of powder. Sublimate dressings to the eye are especially useful in perforating wounds of the eye-ball where there is danger of infection and sympathetic ophthalmia. Even when an exudate is already present in the anterior chamber, it will generally disappear with the dressings.—Woch. f. Therap. u. Hyg. des Auges, xv., No. 37.

TREATMENT OF FALLING-OUT OF HAIR

Gastro-intestinal and nervous disturbances undoubtedly play a rôle in causing falling-out of the hair, but unquestionably the exciting cause in most cases is insufficient ventilation which allows of an accumulation of bacteria on the scalp. Shampooing is an excellent means of keeping the scalp clean and in a healthy condition, yet very often the same purpose may be accomplished by using a stiff brush which mechanically removes all dirt. The various

lotions recommended contain soda, borax, salicylic acid, resorcin, euresol, carbolic acid, sublimate, captol, quinine, tar, etc. One of the best drugs, according to E. Kromeyer is sulphur in the following prescription:

Sulphuris Precip.....	20 Gm.
Alcoholis	70 Gm.
Glycerini	10 Gm.
M. Sig.: Shake.	

This is well shaken and applied to the skin of the head in the evening and again removed with soap and water in the morning. In case of seborrhea oleosa the sulphur may be employed in the form of a powder after shampooing (sulphur ppt. and starch, equal parts). Preparations containing sulphur, such as ichthyol, may be employed in place of the sulphur. Where eczema has appeared, chrysarobin, pyrogalllic acid or lennigallol are excellent substitutes. Where there is intense desquamation, light treatment is in place. In all cases, active treatment should be begun as early as possible.—Therap. d. Gegenwart, Oct. 1912.

IPECAC IN AMEBIC DYSENTERY

H. G. Beck, of Baltimore, after remarking on the general agreement that ipecac is the remedy for amebic dysentery and the objectionable features of the methods in vogue, says a simple, rational, and more practical method has suggested itself to him in the use of the Einhorn duodenal tube. As a rule, patients have little difficulty in swallowing the tube and comparatively little discomfort afterwards. Aspirating a little of the fluid through the tube after it has entered the stomach and testing with congo paper will tell whether it has entered the duodenum. In that case the aspiration is slower and more difficult and the fluid is alkaline and bile stained. The time required for the capsule to pass into the duodenum varies from one to five or more hours. Seven cases are reported in which this method was employed after other methods had been used without effect. It appears that the duodenal administration is distinctly more efficacious than other methods. Large duodenal doses of ipecac seem to have no bad effects. There are occasionally gastro-intestinal symptoms such as nausea, less vomiting, and, rarely, diarrhea lasting twenty to forty-eight hours. Slight general depression may appear with lowered blood-pressure rarely amounting to more than 10 mm. even with doses as large as 2 Gm.—Jour. A. M. A., Dec. 14, 1912.

Prescriptions

Anorexia:

The following has been found useful after exhausting disease or in the case of habitual alcohol drinkers.

Oleoresinæ Capsici.....℥xxiv
Ext. Nucis Vomicae.....grn. xij
Ext. Chiratae.....grn. xlvij
M. Ft pilulæ No. xxiv.
Sig.: One pill before meals.

Incontinence of Urine:

Sodii Benzoatis.....
Sodii Salicylatis.....āā grn. xv
Ext. Belladonnæ.....grn. xxx
Aque Cinnamomi.....f. 3iv
M. Sig.: A teaspoonful four or five times a day.

—White.

Chronic Bronchitis:

The inhalation of the vapor of the following has been recommended for chronic bronchitis:

Olei Eucalypti.....30 Cc.
Mentholis.....5 Cc.
Thymolis.....2 Cc.
Guaiacolis Cryst.....5 Gm.
Aque.....200 Cc.

Rheumatic Torticollis:

Methylis Salicylatis.....f. 3ij
Tinct. Capsici.....f. 3j
Chloroformi.....
Lin. Saponis.....āā f3iij
Alcoholis.....ad f. 3v
M. Sig.: Rub in over affected part.

Thrush:

Archambault recommends a teaspoonful of the following before each feeding:

Aque Fœniculi.....
Aque Calcis.....aa f3j
Syrupi Anisi.....f3ss

Uremia:

Tinct. Hyoscyami.....f. 3iij
Spt. Aetheris Nitrosi.....f. 3ss
Liq. Ammonii Acetatis.....f. 3j
Aque Camphoræ.....ad f. 3vj
M. Sig.: One tablespoonful in water every three hours.

—Charteris.

Epididymitis:

Ichthyolis.....f. 3vj
Ung. Hydrargyri.....
Ung. Belladonnæ.....āā 3iv
Cerati Plumbi Subacetatis.....ad 3ij
M. Sig.: Apply to scrotum freely twice or thrice daily, and support with large suspensory bandage.

Frost Bite:

Ichthyolis.....
Resorcini.....
Acidi Tannici.....āā 3j
Aque.....3v
Sig.: Apply locally once or twice daily.

Intertrigo:

Tannoforni.....3ij
Talcii.....3viiij
M. Sig.: Use as dusting powder.

Intestinal Catarrh in Infants:

In intestinal catarrh in infants when the stool is colored green, Wendt employs the following:

Hydrargyri Chloridi Mitis.....grn. ¼
Pulv. Rhei.....grn. ¾
Cretæ Præp.grn. vii
M. ft. div. No. viij.
Sig.: One three or four times daily.

In the severe forms Comby uses the following:

Iodoformi.....grn. iij
Naphthaleni.....grn. xv
Pulv. Sacchari.....3iiss
Olei Bergamottæ.....gtt ij
M. ft. chart. No. xx.
Sig.: One in milk every hour.

External Piles:

Before applying the following the parts should be washed with a 2% carbolic solution:

Chrysarobini.....grn. xxiv
Iodoformi.....grn. ix
Ext. Belladonnæ.....grn. xvij
Petrolati.....5xij

Bronchitis:

Dionini.....grn. ijss-v
Ammonii Chloridi.....grn. xxx
Sodii Bicarbonatis.....grn. lxxv
M. Div. in dos. æq. No. x.
Sig.: Three powders daily.

—Hoenigsmied.

Gonorrhea:

Olei Santali.....℥v
Olei Terebinth. Rect.....℥ij
Olei Cinnamomi.....℥ss
Formini.....grn. ijss
M. D. tal. dos. No. xxx in caps. gelat.
Sig.: One capsule every three to six hours.

Laryngitis in Children.

Atropinæ Methylbromidi.....grn. ⅓-¾
Antipyrinæ.....
Ammonii Chloridi.....aa grn. vij
Fl. Ext. Glycyrrhizæ.....f. 3j
Aque.....ad. f. 3vj
M. Sig.: Teaspoonful every hour.

Labial Herpes:

Tinct. Benzoini Comp.....f. 3ij
Balsami Peruv.f. 3j
Lanum.....3v
Sig.: Apply several times daily.

Phlebitis:

Plumbi Acetatis.....grn. xxx
Tinct. Opii.....f. 3iij
Aque.....Oj
M. Sig.: Apply freely on lint. Keep part elevated.

Rupia:

Hydrargyri Iodidi Rubri.....grn. j
Extr. Gentianæ.....qs
M. div. in pil. No. xxx.
Sig.: One pill twice daily.

Barlow's Disease: Infantile Scurvy:

Potassii Citratis.....grn. xx
Succi Aurantii Recentis.....f. 3ij
Saccharini.....grn. j
M. Sig.: Teaspoonful every three hours in water.

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PRESENTING A

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JANUARY, 1913

EDITOR'S NOTES

Treatment of Prostatic Hypertrophy

THE treatment of hardly any other affection has been the subject of as much discussion as that of prostatic hypertrophy. Even as short a time as 20 years ago operative interference was hardly ever resorted to, and most physicians relied upon drugs and catheterization to relieve their patients. Bottini's galvano-caustic method was almost overlooked and the injection of arsenic, iodine and alcohol never gained in favor. Castration and division of the vasa deferentia then became the fashion and even noted surgeons claimed to have seen considerable improvement. It did not take long, however, to prove that these operations were useless. Bottini's operation was then remembered until the dangers attending it became evident. Bier's suggestion to tie the iliac artery was not received with much enthusiasm, and even the application of the Roentgen rays proved disappointing. The problem was finally solved by improving the technique of prostatectomy, and at present the suprapubic route is generally chosen in preference to the perineal.

The increase in volume of the prostate gland is usually a benign, neoplastic process. The growths are adenomatous to fibromyomatous in character and considerably interfere with the free passage of the urine from the bladder. The mechanical obstruction is generally the only indication for interference. It is impossible to determine the degree of obstruction by palpating the gland

from the rectum, and apparently small glands may cause considerable disturbance and call more urgently for operation than those which feel very large from the rectum. As a direct result of the obstruction the bladder will never completely empty itself; it will hypertrophy, and in cases of long standing there will result grave changes in the proximal parts of the urinary apparatus.

As a rule the symptoms develop slowly and gradually, unless an acute swelling of the engorged tissues will lead to a sudden suppression of urine. As soon as the swelling has subsided the flow of urine may again be free. The diagnosis of the condition is generally very easy, though the presence of disturbances of micturition where no enlarged gland can be felt per rectum should always call for the use of the cystoscope.

The treatment may be symptomatic or radical. Many individuals with enlarged prostate have no symptoms, and hence require no treatment. The most common symptom which brings the patient to the physician is frequent micturition, especially at night. Sometimes there is slight burning with micturition, especially in the end of the urethra, and the force of the stream is weakened. The urine may be perfectly clear and free from abnormal elements and the patient's general condition may be absolutely normal during this time (premonitory stage of Guyon). As a rule heat is most beneficial for all these early symptoms. The patients should be instructed to take hot sitz baths and to apply hot fomentations over the bladder and perineal region. Rectal injections of hot oil (30 to 50 Gm. at night) are generally very grateful and relieve the desire to urinate. The diet must be regulated and all alcohol and spicy food must be strictly forbidden. Local treatment, such as sounding, massage of the prostate, etc., is not necessary at this stage and may do more harm than good. Sometimes analgesics and narcotics are necessary to reduce the irritability of the bladder and the congestion. Antipyrine or pyramidon may be given internally or, better still, per rectum, dissolved in a small amount of water. Where these drugs do not give prompt relief, suppositories of morphine or of heroin may be prescribed, or both sets of drugs may be used together in smaller doses, so that the patient does not so readily acquire the habit.

In the second stage all the above symptoms are intensified and a certain amount of actual pain is usually the rule. It is characteristic of this stage that the bladder no longer empties itself, and catheterization after micturition will show the presence of

50 to 300 Cc. of residual urine. The general condition now suffers, the appetite fails and the patients complain of an intense thirst. The only rational therapy during this stage is systematic catheterization. The presence of 100, 200 or even 300 Cc. of residual urine is in itself no indication for regular catheterization if the patient has a very distensible bladder and is not disturbed in his vocation. On the other hand, if the bladder is small, catheterization will become necessary much earlier. It is thus impossible to say, from the amount of residual urine alone, when to begin catheter life. Catheterization will also be necessary where there is a continuous dribbling caused by an overflow of the bladder. The frequency of catheterization can only be determined by the degree of polyuria; thus in some cases twice a day will be sufficient, while in others three to four times a day may be necessary. Catheterization will always bring the dangers of infection with it, and it is therefore desirable always to wash out the bladder after the urine has been withdrawn with silver nitrate, 1:2000; boric acid, 3 per cent.; or albargin, 1:2000. Where there is much distension of the bladder great care is necessary with the first catheterization, and it is often best to inject about 100 Cc. sterile water into the bladder after the urine has been withdrawn.

Urinary sepsis is one of the greatest dangers where the catheter has not been employed in this stage. The patients suffer from chills and an intense thirst and the turbid urine does not clear up even after irrigation. A permanent catheter or a perineal fistula may be indicated, and internally formin should be given. Stimulation or saline infusion may be necessary.

In many cases catheterization is extremely difficult and there will always be grave danger of creating false passages. A catheter with a Mercier curve should then be employed and it may be advisable to leave it in place for some time. Irrigation can then be easily performed, and the subsequent introduction of other instruments will be rendered much simpler. Where the first catheterization does not succeed it is best to puncture the bladder over the symphysis. This puncture may be repeated if necessary, but strychnine injections are generally useless.

This symptomatic treatment will often render the patient comfortable for years. He is entirely dependent on the physician, however, and complications on part of the kidney must always be feared. The radical operation in its present perfected form there fore has its justification in many cases. The

results of the operation are excellent. The bladder will always regain its function and the tenesmus and pain will disappear. The mortality, as stated by various authors, varies between 5 and 20 per cent. Prof. L. Casper ("Therap. der Gegenwart," Sept., 1912), who has a very large experience, reports 15.6 per cent. The chief causes of death after the operation are severe bleeding, septic infection, shock and cardiac weakness. It must not be forgotten that many of the patients operated on are advanced in years and have been considerably weakened by their suffering, hence no longer have the necessary resistance to stand a major operation. Thus, according to one observer, the mortality is only 5.8 per cent. between 49 and 59 years, but 50 per cent. over 89 years. No patient should be operated unless strict indications are present, and it would be a mistake to remove every prostate that is larger than normal. The most important indications are dysuria and painful vesical tenesmus, which does not yield to other treatment; frequency of micturition, which is not relieved by catheterization; great difficulty or impossibility of catheterization, recurrent prostatic hemorrhages and tendency to stone formation. The operation should not be undertaken where there is advanced diabetes, grave changes in the heart or the kidneys, very marked arteriosclerosis or generalized, chronic urinary sepsis.

A Correction

Through an error which we greatly regret, credit for the interesting article on "Neurasthenia" by Dr. J. Gordon Sharp which we reprinted in our issue of November last was credited to the "Practitioner" instead of the "Prescriber." The "Prescriber," a monthly journal of therapeutics and treatment, is published at Edinburgh, Scotland, under the editorial direction of Thomas Stephenson, Ph. C., F. R. S. E., F. C. S. and is one of our most welcome exchanges.

Acute Gastritis:

For the control of vomiting that persists even after emesis, Hamner considers lavage of the stomach to be the quickest treatment, if followed with the introduction by the tube of the following antiseptic solution:

Thymolis	grn. viij
Acidi Borici	3ss
Aquæ Calidæ	Oij
Ft. solutio.	

Sig.: One pint through stomach tube.—Virginia Medical Semi-Monthly.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects.

The Urine Just Before Outbreak of a Neurosis.—Orlowski calls attention to the changes in the urine he has observed in patients on the verge of a nervous breakdown. The curve of acidity of the urine shows a different rise and fall, being lowest morning and night, contrary to the normal decline in the middle of the day. The phosphates also behave differently and the indican content increases. Orlowski has been studying for years the behavior of indican in the blood in various conditions and is convinced that the proportion of indican in the urine is an index of low vitality, relaxation of the body, especially of the nervous system. It is thus a practical index of impending nervous breakdown. Even healthy persons, when they feel languid and without much vitality, have indican in their urine transiently. Persons with the paradoxical acidity curve mentioned above often have abnormal proportions of indican in the urine.—*American Practitioner*.

Tuberculosis and Obstetrics.—Cases of tuberculosis that become active during pregnancy are considered by C. S. Bacon, of Chicago, who estimates the number of such in the United States to be between 22,000 and 44,000 each year. The effect on pregnancy is slight and if the patient gets through the first three months well she may even improve in her general condition, though some authorities hold that there is always increase of the tuberculosis process during pregnancy. Bacon cannot admit this, but says that it is an acknowledged fact that the conditions are aggravated during the puerperium and in bad cases death may be hurried within a few weeks. There are two problems in the prophylaxis—the prevention of pregnancy in a tubercular woman and the prevention of infection in a pregnant one or one liable to become pregnant. The latter is likely to be overlooked and is very important. The chief danger to the woman is infection from her husband, and there is nearly as much reason why a tubercular man should not marry as why a tubercular girl should not. The prevention of pregnancy in a tuberculous wife can be accomplished by strict abstinence, by the use of measures to prevent conception and by sterilization. Of course, we advise the first, but we cannot feel sure of it. Preventive measures are generally failures. Artificial sterilization is not immoral in itself and not open to the objections to abortion. Whatever operation is performed, it is important that the written consent of both husband and wife be obtained, to avoid possible future legal complications. In nulliparae, or women with but one child, only a temporary sterilization is advisable. If both partners are tuberculous, vasectomy in the male may seem more reasonable and safer. The justification of abortion in a tuberculous woman depends on the correctness of the assumption that it is necessary or life-saving to the woman, and Bacon thinks that it is difficult to assume this with any certainty, and the life of the fetus ought also to be considered. The watchful care of pregnancy must be doubled in tuberculosis, and, as before said, there is still greater risk in the puerperium of aggravation of the infection already in the system. After birth

of the child there is danger of infection from the mother, and when possible a healthy wet-nurse should be employed. If not possible, the child, if strong, may be fed judiciously with milk, and if nursed at all by the mother the milk had better be pumped from the breasts. The added strain of nursing on the mother may be a good reason often for forbidding it. Bacon believes that there should be special sanatoria and dispensaries for tuberculous mothers, before and after confinement, who cannot well be cared for at home. A children's department for their children under four years of age, and, as a rule, already infected, should be attached to the maternity hospital. This would be attacking the problem at its source.—*Jour. A. M. A.*, Dec. 21, 1912.

Diet in Nephritis.—The rules for diet in nephritis are stated by A. Kakowski as follows: During the first two days of acute nephritis only weakly alkaline water and boiled milk are allowed in gradually increasing amount (one to two liters daily). After the tenth day cream and butter are added, and after the fifteenth to twentieth day sugar, rice, farina, wheat bread and weak tea. In sub-acute nephritis non-irritating vegetables and fruits may soon be added to the milk, cream and butter and very soon two or three soft boiled eggs are given. In chronic parenchymatous nephritis the diet should be a mixed one, consisting chiefly of cereals, non-irritating vegetables and fruit, tea, fruit juices, milk, butter, bacon and eggs. Meat should be given very carefully. It is best to begin with recently slaughtered chicken, and if this is well tolerated to add veal, pork and beef. Sausages, cheese, preserved fish, venison, mushrooms, spices, alcohol and seasoned broths should never be allowed. In contracting kidney the diet depends more upon the condition of the circulatory organs than the kidneys. The amount of fluid ingested should not, however, exceed 1,500 Cc., and everything irritating should be excluded. Where there is azotemia, the proteids should be limited, and where there is retention of the chlorides the amount of salt taken must be reduced as much as possible.—*Berl. klin. Woch.*, Sept. 16, 1912.

Renal Functions in the Course of Nephritis of Childhood.—P. Nobécourt and P. Merklen distinguish several types of nephritis according to the condition of the kidneys with regard to permeability to chlorides and nitrates. In cases where the chlorides are not eliminated there occur edema and anasarca; in those in which nitrogen is not eliminated there occur digestive symptoms. This is true both in acute and chronic nephritis in children. In the chloremic form there may occur pharyngolaryngeal edema, pulmonary edema, hydrothorax, digestive troubles, including vomiting and diarrhea, headache, eclampsia, coma, Cheyene-Stokes respiration, and visual troubles. In the azotemic or uremic form there is no edema but there are loss of appetite, vomiting, torpor, pruritus, etc. The authors distinguish a simple albuminous form: a chloremic form with scanty urine containing albumin and casts; an azotemic form, with modifications of arterial tension and cardiovascular symptoms; and a combined form with symptoms of both of the other varieties. In the simple form there is no development of uremic symptoms, nor is there a marked change in weight. In the chloremic form, the chlorides being treated, the urea is eliminated normally. As to prognosis,

with normal permeability one need not fear accidents, with retention of chlorides alone there are only the phenomena due to edema; with the combined form there are the most intense symptoms indicating grave renal disease or diffuse lesions. The appearance of arterial hypertension and dilatation of the heart is of bad prognostic value. Simple albuminous nephritis may nevertheless cause anemia and cachexia if of long standing. If retention of chlorides continues the prognosis is bad. These cases are illustrated by the pale, cachectic children who succumb to intercurrent diseases. As to treatment, in simple albuminous forms the use of salt and albuminous substance is harmless. In these cases a mild diet, varied with vegetable soup, is of value. In the chloremic form one should give water only for a few days, with lactose. The addition of milk containing salts is not indicated. When the renal function improves a milk diet is given and later meat, eggs, and bread are administered. Lactose and theobromine should be used as diuretics. Milk is the food of choice in nephritis.—Arch. de Méd. des Enfants per Med. Record.

Keratosi Follicularis.—W. B. Trimble, of New York, reports five cases of keratosis follicularis occurring in the same family, in which microscopic examination was made of the lesions. Certain peculiar cells were found—the so-called psorosperms of Darier. While these are not supposed to have any relation to the etiology of the disease, they are of diagnostic import, although the diagnosis is otherwise comparatively easy. In the case heretofore reported, the disease began usually before the sixteenth year, but that does not seem to be the case in the five here reported. He has found in the literature only three other instances in which more than one member of a family was infected. With the theory of contagion in mind, he undertook some animal experiments. He grafted a small section of the lesions into the skin of the shaved abdomen of a guinea-pig under strict aseptic precautions, and another small section was made into an emulsion with normal saline and injected both subcutaneously and intraperitoneally into a second pig. A third experiment was made on a rabbit by vaccination with the contents of several diseased follicles. In all the results were negative, and after six weeks no sign of the disease is apparent in the guinea-pigs. The contents of a number of lesions were forcibly expressed for culture experiments. They were planted on plain agar, blood agar and serum agar, and under aerobic conditions showed nothing but staphylococci, but when planted on glucose agar and grown anaerobically for six days two apparently different bacilli could be made out in the smears—one a somewhat granular Gram-positive, the other a short thick bacillus that he cannot classify. Thus far he has not been able to separate them in pure cultures. Whether this nondescript bacillus has anything to do with the disease it is, of course, impossible to say without further work and study, which he hopes to give. In conclusion he calls attention to the severe and marked keratosis of the soles that is present in the majority of these five patients. It is, he thinks, connected with the pathologic process.—Jour. A. M. A., Aug. 24, 1912.

SPRIGGS has seen several cases of diabetic coma respond favorably to intravenous injections of three pints of a two per cent. solution of bicarbonate of soda, used in conjunction with the usual eliminative treatment.—Amer. Jour. Derm.

Cyanosis in Dementia Praecox.—W. B. Cornell, of Hathorne, Mass., has studied 241 patients with dementia praecox in the Danvers Hospital for the Insane, and found 78 per cent. to show some grade of cyanosis, from a mild degree to an extreme dusky purple. It was usually most marked over the dependent parts, yet the skin as a whole is often bluish, especially on the upper back. The relative frequency of the involvement of the hands, feet and back is as 9:6:5. It may occur on the feet and not on the hands, and is sometimes most marked on the face and lips. It varies from day to day without regard to position or temperature. In the catatonic form, 90 per cent.; in the hebephrenic type, 75 per cent., and in the paranoid, 50 per cent., were more or less cyanotic, and the intensity varies in the same order. The symptoms have some prognostic significance, the worst cases becoming most rapidly demented. Acute catatonic excitement with marked cyanosis forecasts grave danger of collapse and death. It may serve also to differentiate between dementia praecox and acute manic insanity, in which it is exceptional. He also thinks it would be of use in the differentiation of imbecility from dementia praecox. As to the nature of this cyanosis, he does not find it dependent on blood-pressure, but it is certainly a vasomotor indication. He sums up as follows: "A cutaneous cyanosis is found in a large majority of dementia praecox cases, most frequently and intensely in the catatonic form, next in order in the hebephrenic and then the paranoid. It is part of a generalized vasomotor disturbance, consisting in a phlebostasis of unknown origin. Cyanosis is variable within large limits, even in the same patient. Cyanosis offers a valuable diagnostic sign in differentiating dementia praecox from manic-depressive insanity, imbecility, hysteria, constitutional inferiority and occasionally the organic psychoses."—Jour. A. M. A., Dec. 21, 1912.

Absinthe.—Apropos of recent legislation forbidding the importation into the United States of absinthe, it will probably be found necessary to go still further and forbid specifically the importation of any beverage containing thujone. This is a colorless, oily ketone, $C_{10}H_{16}O$, with an agreeable odor, to which the ensemble of symptoms known as absinthism are due, apart from those which may be attributed to the large percentage of alcohol in the beverages with which it is combined. Such further legislation according to "Semaine médicale" for July 3, 1912, is under discussion in the French Senate, where the sale, keeping for sale, manufacture and transportation of any liquid containing thujone, except for pharmaceutical purposes, are likely to be forbidden, that is, as our contemporary hints, after the usual prolonged debate to which measures of this kind always give rise. Nothing would be easier, apparently, than to evade a law affecting absinthe alone. Other combinations of wormwood, tansy, anise, arborvitae (*Thuja occidentalis*) or other plants containing the seductive and fatal thujone could be substituted, or synthetic combinations might soon appear in the laboratories of our clever chemists. Those who are conscientiously fighting the green peril therefore, should see that a radical and sweeping law is enacted, as secure as may be from the ingenious attacks and evasions to which such a statute would instantly be subjected.—Exchange.

Book Notes

THE QUALITATIVE ANALYSIS OF MEDICINAL PREPARATIONS. By H. C. Fuller, B. S., Chief Analyst, Institute of Industrial Research at Washington, D. C.—The physician who attempts the chemical analysis of the ordinary medicinal preparations, or indeed any chemical analysis, is confronted at once with a mass of literature on the subject that makes the task of picking out just what he needs for his particular problem almost hopeless. In the work before us the author outlines a simple and a practical scheme for the detection of all the commoner medicaments, including even the alkaloids, anesthetics and the newer synthetics. Especially valuable are the tables, such as that giving the color reactions of the local anesthetics to the usual reagents and test solutions. By reference to such a table one can see at a glance just how a substance should react with any one of a score of reagents, giving us information that with the usual text-book would require much laborious search to obtain. The work is concluded with a chapter on the preparation of the necessary reagents. A comprehensive and carefully prepared index makes consultation easy. (1913. John Wiley & Sons, New York. Price, \$1.50 net.)

PROGRESSIVE MEDICINE.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences, edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D., December, 1912.—Among the topics discussed by E. H. Goodman in the chapter on "Diseases of the Digestive Tract" are tuberculosis of the mouth, diseases of the esophagus, analysis of gastric contents, ulcers and cancers, intestinal flora, constipation, diseases of the liver and pancreas. This is supplemented by a short article on the diseases of the kidney by John Rose Bradford. An especially interesting though lengthy article on "Surgery of the Extremities" is contributed by Joseph C. Bloodgood. The genito-urinary diseases are reviewed briefly by Charles W. Bouney. The recent advances in medicinal treatment are reviewed by H. R. M. Landis in an article entitled "Practical Therapeutic Referendum." (Lea & Febiger, Philadelphia and New York. Per annum, in four paper-bound vols., \$6.00.)

GOULD AND PYLE'S CYCLOPEDIA OF PRACTICAL MEDICINE AND SURGERY, with particular reference to diagnosis and treatment. Second edition, revised and enlarged. By R. J. E. Scott, M. A., B. C. L., M. D., with 653 illustrations.—This second edition in two volumes of Gould and Pyle's excellent work has been thoroughly revised; much of it has been rewritten, many new articles incorporated and a few of the old have been omitted. The work as a whole shows great care in its preparation and is in every way worthy of the long list of its contributors, among whom are numbered many of the foremost in the profession. In the new treatment will be found, among others, articles on anatomic age, Bier's hyperemic treatment, Brill's disease, food adulteration, heart block, narcotic addiction, opsonin

therapy, paratyphoid fever, pyorrhea alveolaris, radium, sleeping sickness, extraction of teeth, tuberculin, vaccine therapy, caisson disease, rape, phototherapy, salvarsan and worms. We note also a great improvement in the illustrations. Not only have many new ones been added, but many of the old ones have been replaced by better ones.

Among the many mechanical features that add greatly to its value are the cross references which have been freely inserted and the catch words placed at the top of each column. The numerous prescriptions are written in English and without abbreviation, and the scruple sign has been eliminated as being both confusing and unnecessary. The busy practitioner will find in this work a reliable and trustworthy reference book for every emergency that may confront him. We shall find a prominent place for it on our own reference shelf. (P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, 1912. Price, 2 vols., \$14.00 net.)

THE MODERN MATERIA MEDICA.—The source, chemical and physical properties, therapeutic action, dosage, antidotes and incompatibles of all additions to the newer materia medica that are likely to be called for on prescriptions, together with the name and address of the manufacturer or proprietor, and in the case of foreign articles, of the American agent. Third edition, revised and enlarged. Though compiled for the use of the pharmacist, this work will prove of great value to the physician who is interested in the newer remedies. Its scope is well stated in the sub-title. Although it is less than two years since the second previous edition, the additions to the materia medica in that time have been so numerous that almost six hundred new items have been listed. (The Druggists' Circular, 100 William St., New York. 1912. pp., 282. Price, \$1.00 net.)

DER TUBERKULOSE-FORTBILDUNGSKURS DES ALLGEMEINEN KRANKENHAUSES HAMBURG-EPPENDORF.—Herausgegeben von dem ärztlichen Direktor Dr. Ludolph Brauer. Band 1. This volume contains ten interesting articles on the various phases of tuberculosis, many of the articles being illustrated with photographs and charts. Especially noteworthy is the article on the treatment of tubercular affections of the bones and joints by Dr. F. Oehlecker, and on tuberculosis in gynecology and obstetrics by Dr. W. Rüder. The relation of leprosy and tuberculosis is ably discussed by Prof. Deycke. (1913. A. Stuber's Verlag, Würzburg, Germany. Price, unbound, M. 9; bound, M. 10, 20.)

LEHRBUCH DER HAUT UND GESCHLECHTSLEIDEN. Einschliesslich der Kosmetik. 1 Band. Hautleiden und Kosmetik von Sanitätsrat Dr. S. Jessner. Vierte sehr erweiterte Auflage.—This second section to appear of Dr. Jessner's well-known work is devoted to prurigo Hebrae, purpura, the acute exanthemata, eczema, pityriasis, herpes, favus, scabies, erythema, miliaria pemphigus, impetigo, dermatitis traumatica, toxica, etc. Of the excellence of the colored plates we remarked in our review of the first section. The completed work will consist of two volumes of four sections each. (Price, complete, bound, M. 16. A. Stuber's Verlag, Würzburg, Germany. 1913.)

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And it's easy to laugh when you're strong;

But one of your terrors may get you at length

And alter the pitch of your song!

Then you will remember the jests you have made

And scorn his assistance, no doubt!

Or will you entreat him to fly to your aid

With the skill you have jested about?

—C. H. Mackintosh, in Judge.

FOREIGN BORN GUNMEN have again directed attention to the amount of crime committed by foreigners, and a great many unkind things are being said about this class of Americans which would have not have been said had the writers fully realized that much more than half the population is foreign born or have foreign born parents. It would not be alarming if 65 or 70 per cent of crime were due to these people, for such a large percentage of them come from countries where crimes of violence, due to uncontrollable passions of emotional people, closely approximate normal acts. They have not been in America long enough to show the effect of the sobering influence of contact with the more quiet northern types, but the indications seem to prove that the second and third generations do not resort to violence to anywhere near the extent of the immigrant ancestor. A few, like the gunmen, seem to be made worse, but this is largely due to that transition period during which the old restraints have been weakened before new have been acquired. What should worry us is the percentage of crime committed by the degenerate members of old families, for here we are face to face with the evidence of serious decay of the stock as a whole, except where it is rejuvenated by new blood from Europe. In spite of our dreadful murder record, and in spite of the doleful remarks of pessimists, there is evidence that crime is lessening both here and in Europe, and has been decreasing ever since highway robbery was a gentleman's occupation and drunken-

ness universal. Men are driven from public life and socially ostracized for acts which were scarcely considered wrong a century ago. Moral standards are higher and their violations less numerous even if we are very far from angelic. There is an awakened public conscience reflected by our juries which are now reluctant to release murderers on silly technicalities. The only ones who rejoice over failures of justice and make heroes of acquitted or executed murderers are newly arrived immigrants from places where oligarchic governments are oppressive and innocent men not infrequently accused. They are against all government acts. The older Americans are more on the side of law and order. It would be a cause for rejoicing if all our crime were due to the foreign element, for the amount committed by the old stock is really an evidence of degeneration which should be carefully studied by the medical profession. We do not here refer to the crimes of violence, but to the grafting, swindling, bribing of respectable people of good ancestry and often of rich families. These are the ones who have made our city governments so rotten, and we ought to find the causes. It is a medical matter not a purely ethical one. We as a profession ought to take more interest in such academic studies of social affairs and drop the habit of giving all our time to individuals.—American Medicine.

IODINE AND MERCURY DERMATITIS.—S. R. Karples, of Washington, D. C., cautions against the combined use of iodine and mercuric chloride for disinfection of the skin, and reports a case of very severe dermatitis produced by this combination, the tincture of iodine having been first employed and followed by the sublimate solution. The red iodide of mercury is produced, which, according to Wood, is a powerful local irritant, as this case would seem to show.—Jour. A. M. A.

THE GROWTH OF A LEGEND.—"X" relates that he "has recently been watching with much interest the circulation through the weekly papers of a story anent the artist Whistler and Sir Morell Mackenzie, which, curiously enough, starting in Paris, has now reached the American medical journals and seems embarked on a long and active career. Briefly, it is this: Whistler's pet poodle being very ill, Sir Morell Mackenzie was sent for in hot haste. Indignant at having been summoned to see a dog, he nevertheless pocketed his dignity and prescribed *secundum artem*. Whistler, having thanked the 'eminent surgeon' profusely, begged to know the fee. Sir Morell, turning away, said pleasantly, 'Oh! My house wants painting. Will you see to it?' Now Sir Morell Mackenzie was without doubt an accomplished laryngologist; but why Whistler—whose brother, by-the-bye, was almost equally celebrated in the same department of medicine—should have desired the services of a laryngologist for his poodle, heaven only knows. Mr. Benvenuto, the eminent raconteur, seems for the moment at fault. Still the natural history of such legends as this leads us to suppose that the story of the laryngologist and the poodle will continue to circulate, till after having served its day it 'falls on sleep,' later to be revived by the journalists of the next generation about some heroes of to-day.

Many years ago there was related in that excellent, even if mid-Victorian periodical, 'The Leisure Hour,' a similar story; but this time

concerning Nélaton and Meissonier. Some time during the early days of the Second Empire Nélaton was urgently summoned to the painter's villa in the *banlieue de Paris*. After some time had been spent in the way of sumptuous entertainment, Nélaton, a little impatiently, begged to be introduced to the sufferer. Whereupon two gorgeous flunkies entered the room bearing on a cushion a little dog with a broken limb, and the master fell on his knees entreating the surgeon's forgiveness and aid. Nélaton addressed himself to the case, and set the limb. He was departing when Meissonier desired to know, as Portia would have said, how he might gratify the gentleman, for, in his mind, he was much bound to him. The story goes that Nélaton then declared the door of his '*cabinet de consultation*' to need painting, and hoped that the artist would restore it. Meissonier seized the occasion, we are told, of the surgeon's temporary absence from Paris to produce on each panel a veritable *tour de force*.

"Now, this is a more exquisite tale than the other. But the germ of both may be traced in the episode of Radcliffe and Kneller, as related by the veracious Pittis. Radcliffe and Kneller lived near each other in Bow street; their gardens were separated by a wall. Radcliffe, for the better entertainment of his friends, begged the privilege of entrance to Kneller's *plaisance*, through a door which he desired to make in the wall. The painter, with accustomed grace, gave his assent, but, the privilege being abused by the doctor's servants, had thereafter courteously to hint that if the grievance recurred the door must be bricked up. Whereupon the choleric doctor sent a message to say that Sir Godfrey might do what he liked to the door, so long as he did not paint it. 'Did my very good friend, Dr. Radcliffe, say so?' cried Sir Godfrey. 'Go back to him and, after presenting my service to him, tell him that I can take anything from him but his physic!'"—The Universal Medical Record.

HEMOLYSIS TESTS are desirable before selecting a donor for transfusion, but if the case is of great emergency this may be dispensed with, since hemolysis is unlikely if the donor is free from malignant growth and tuberculosis. Syphilitic taint must, of course, be excluded.—Amer. Jour. Surg.

DIVERSION FOR THE MENTALLY DEPRESSED.—It is said that sheep herders who remain at their posts for long periods lose their mental equilibrium. The sheep is not argumentative. The herder has it all his own way and becomes, in Western phrase, "locoed."

Moving backward on this line of thought one naturally reflects as to what specimen of the domestic animal would be most likely to produce an opposite effect and provide that continuous variety calculated to exercise the largest number of brain cells. The answer is easy—the great American hen.

In referring to the hen in the above language of adulation, we are following the lead of the statistician and census taker, but there is another reason why the hen should receive about all the decorations the alphabet affords, viz.: the hen is the only companion of man who can be depended upon to beat him at his own game.

Man is a predatory animal and delights in craftily despoiling some other animal of his treasure. Under his devious spell the fiercest and boldest of the four-footed beasts succumb and yield up their fur coverings or bow in subjection to the yoke of servitude. So true is this that monotony is, the rule in man's association with the lower animals.

The hen is the one exception. Infinite variety has been ascribed to woman, but Shakespeare was not a poultry fancier. He was a fairly good judge of blondes and seemed to have drawn the brunette with considerable accuracy. But compared with the originality of the genuine Plymouth Rock hen, the Shakespearian heroine was a marionette to be wound up just as the orchestra began to play.

With all the rest of the animal creation at his feet, man's subjection of the hen may be better stated as his subjection to the hen. Just a slight change in the preposition, that's all; but it means enough money to swamp Wall street.

A vast number of city-employed householders have journeyed to the suburbs in order that the problem of the high cost of living might be solved. All that was necessary in iridescent theory was a few domesticated feathered pets continuously clucking their satisfaction in the back yard. And well may they be satisfied.

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delicacies of the season. She requires the first half of the brief egg-laying season for what is called molting, viz.: to arrange her tail feathers so as to act properly in a breeze and the other half to adjust her domestic affairs so as to bring off an early brood of chickens.

The hen is possessed by vanity, jealousy, maternal affection to an inordinate degree, but especially by stinginess in that little matter of laying eggs. And that is where man, the supreme conqueror of the lower orders of life, meets his Waterloo.

And so if the monotony of association with the woolly, idiotic sheep brings on a collapse of the mental faculties through disuse, why should not the problems associated with making a common flirtatious hen lay eggs prove a tonic of the first magnitude to the aforesaid mental faculties?—Monthly Cyclopedia.

IT ALL DEPENDS.—Said a young physician of the new school: "Do you know it makes a heap of difference how you apply remedial agents? Thirty drops of turpentine to a dog by mouth makes him pass a ten-foot tape worm. The same thirty drops per rectum would make him pass a seven cylinder motor car at the speed limit. So there you are. It all depends."—Exchange.

TELEPHONES AND PRACTICE.—With the development of modern transportation, it was said that the oceans no longer separated America from Europe and Asia, but served to connect them. In a similar way it may be said that telephones have helped to bring physicians and patients together.

It is striking to note in the "Telephone Review," July, 1912, that while the 1911 population per square mile in the United States was 30, the number of telephones per 100 of population was 8.1. It is very noteworthy that the United States contains within its boundaries almost three-fourths of all the telephones there are in the world.

The telephone has been a mighty factor in improving the health and welfare of the community. Health bureaus have been able to accomplish their work more rapidly and effectively by use of the telephone. Ambulance service has been developed to a high state of efficiency through the accessibility of telephones in all parts of the community. Rapidity of service with promptness in phoning have served to save many lives that otherwise might have been lost.

The private practitioner, it is true, has suffered a marked decrease in his emergency calls through the recognition of the value of ambulance service and the ease with which one may be summoned by telephone. In fact the doctor's 'phone is frequently used to call the ambulance. Only a few years ago the nearest physician was called for minor conditions at all hours of the night. To-day the telephone saves many a long and needless journey. Frequently, because of the knowledge and appreciation that a physician may be quickly summoned by 'phone in cases of real necessity, the doctor is not called at all as some transitory condition has disappeared before morning. In contrast to this small loss is the gain through telephone visits in lieu of office calls. Such 'phone visits may be regarded as office visits on the grounds that if telephones did not exist it would be necessary for the patient to seek advice at the office.

Undoubtedly the telephone has enabled patients to cling to their family physician, after moving from his original sphere of influence, whereas if there were no telephones, such loyalty would have been impossible. Professor Bell and others who followed him in developing the telephone system added greatly to the comfort, happiness, progress and welfare of society, in all of which the physician has enjoyed his share.—Med. Rev. of Rev.

THE "SAFE TRIANGLE" or "interpleural space" for exposing the heart is at the left of the sternum behind the three lower costal attachments.—Amer. Jour. Surg.

ALLERGY TO COMMON FOOD.—In a boy now eight years old marked urticarial lesions were caused by the ingestion of eggs, almonds and oatmeal. The idiosyncrasy to egg was not congenital, but was acquired at some time between the ages of 10 days and 14 months. Symptoms due to the ingestion of oats appeared some time after the child had first eaten oatmeal when he was 22 months old. As far as could be ascertained, the idiosyncrasy to almonds was manifested the first time this food was eaten. Schloss then undertook a series of experiments to determine the nature of this susceptibility.

It was found that cutaneous inoculation of these and certain related food substances produced an urticarial wheal at the site of inoculation. The cutaneous reaction was produced only by the protein constituents of eggs, almonds and

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oats. Different proteins from the same source varied in activity, some being incapable of causing a reaction. Some of the active proteins caused urticaria by mere contact with the unbroken skin. It was possible, passively, to sensitize guinea pigs to ovomucoid (one of the active proteins from eggs) by intraperitoneal injections of the patient's blood serum. By feeding ovomucoid in gradually increasing doses the patient became immune to egg. At the same time immunity to oatmeal and an apparently decreased susceptibility to almonds occurred.—*Amer. Jour. Diseases of Children.*

FRESH AIR.—She: "I am almost baked. I have been shut up in a close, stuffy room for two hours."

He: "What was the occasion of that?"

She: "A meeting of our Fresh Air Society."

AN AFFECTION OF THE NAILS IN CONFECTIONERS.—Many cases of occupation-dermatitis are known to affect the nails, the special manifestations being usually those seen in eczema when it attacks these appendages. Dr. Max Strauss of Nuremberg (*"Deutsche med. Woch."* Nr. 18, 1912) calls attention to a form of professional dermatitis affecting the nails of those employed in the manufacture of preserved fruits and fruit-syrups in France. These workers are engaged in continually plunging their hands into saccharine or acid liquids, and in addition to this undesirable medium there is the slight mechanical irritation set up by the shock of the plunge. As a result a peculiar and very troublesome type of onychia and peri-onychia is set up, followed by nail changes which consist of a darkening and opacity of the nail-plate with here and there yellowish points. A certain amount of oedematous infiltration of the sensitive pulps of the fingers is generally present at the same time, while the free borders of the nails show a tendency to become friable. Abstinence from work appears to be the only certain means of cure in this, as in most forms of professional dermatitis. In a few of the factories it may be noted that arrangements are being made for the stirring and dipping of the fruit to be done mechanically and not by hand.—*Amer. Jour. Derm.*

IN REMOVING A FOREIGN BODY from a joint none but an uncontaminated glove finger should be permitted in the wound, and that no more than is necessary.—*Amer. Jour. Surg.*

HYSTERIA.—After noticing the different definitions of hysteria by authorities, T. A. Williams, of Washington, D. C., gives cases exemplifying the mechanism of hysteria affected by suggestion, and next discusses the alleged trophic symptoms which he considers due to physical agencies operated by the patient. At least no satisfactory evidence has been produced to the contrary. The attempts that have been made to account for the genesis of hysterical symptoms are next noticed. The explanation which commands the most notice, he says, is that of Freud, who ascribes it to a mental conflict which has arisen as a result of painful experiences. Williams points out that Freud himself admits having overestimated the effects of sexual causes which has been made so much of by some of his followers. He still attributes, however, the psychosis of obsessions and phobias and also the anxiety neurosis to direct perturbations of the sexual functions, but he no longer imputes to this immediate cause what he

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calls hysteric symptoms, which he admits to be purely psychogenic. He tries to explain these by the subconscious effects of forgotten circumstances, the memory of which can be recalled by his "free association" method, consisting in placing the patient in a tranquil attitude and inducing him to think aloud about the events of his illness, and urging him to push his recollection still further back. Other means of recalling memories are the association test of Jung and the psychic galvanic reaction of Veraguth, which has been proved by Sidis to be an electromotive muscular change during emotion, occurring only during contraction. The hypnoidization of Sidis seems to Williams closely similar to the method of Freud. All these methods are alike in the element from outside stimuli with mental concentration on the line indicated by the physician. The patient re-enacts his experiences as he would in his dreams. From all the facts Williams thinks it should be apparent that the preliminary finding of the causative idea is essential to the certain and permanent removal of a hysteric symptom. Empiric methods are of no use, as they only strengthen the patient's belief in his symptoms. The search for this cause and its discovery suffice sometimes to remove the symptom, but it does not cure the disease; the re-education of the patient's hysterizability is needed. Williams does not think that the prolonged isolation, over-feeding, massage, electrical applications and special nursing are essential. The neurasthenic symptoms which are induced by a fixed notion of illness soon disappear when the patient's ideas are rectified, as one of his cases illustrates. The patient must learn his own psychology and the dependence of his bodily health on his mental state. He must also learn that body and mind are only two sides of only one thing and must practice himself under the physician's direction in learning to avoid the conditions that are hurtful to him. Hysterizability varies with bodily states, and while hysteric symptoms are always psychogenic, they have a mechanism the knowledge of which will enable the clinician to discover their origin and remove it.—*Jour. A. M. A.*

COURVOISIER'S LAW is rarely broken—enlargement of the gall bladder with pronounced jaundice means neoplasm.—*Amer. Jour. Surg.*

THE TRANSMISSION OF DISEASE BY TELEPHONE has been a subject of much discussion, and many alarmist statements have been uttered in regard to its possible frequency. Tuberculosis especially has been mentioned, but according to some experiments recently undertaken in London at the instance of the postmaster general, there appears to be little likelihood of its transmission in that manner. Dr. Harold Spitta, bacteriologist to the royal household, conducted the experiments. Mouthpieces were taken not only from public 'phones, but also from 'phones exclusively reserved for the use of consumptives in a sanatorium. After washing the mouthpieces and the discs in a very little sterile water, this water was injected into a number of healthy guinea pigs. Notwithstanding the fact that these investigations were repeated very many times during several months, in not a single instance was tuberculosis developed in the guinea pigs. Dr. Spitta thereupon concluded that "the transmission of tuberculosis through the medium of the telephone mouthpiece is practically impossible." Assuming adequate care and accuracy in the experiments, it must at least be conceded that such

transmission is so very unlikely as to fail to justify any widespread alarm. We should be disposed rather to regard the possibility of syphilitic infection from mucous patches as more likely in the case of those careless people one occasionally sees, who bring their mouths into actual contact with the mouthpiece. There is no necessity whatever for the mouth of the speaker to be brought into contact with the mouthpiece, for those who have tried it find that when one speaks across the mouthpiece at the distance of a few inches, provided the enunciation is clear, every word is distinctly audible.—*American Medicine.*

A BAD LOT.—When charged with being drunk and disorderly and asked what he had to say for himself, the prisoner gazed pensively at the Pueblo magistrate, smoothed down a remnant of gray hair and said: "Your honor, man's inhumanity to man makes countless thousands mourn. I'm not so debased as Swift, so profligate as Byron, as dissipated as Poe, as debauched as—" "That will do," thundered the magistrate. "Ten days! And officer, take a list of those names and run 'em in. They're as bad a lot as he is!"

THE ETIOLOGY OF ACNE AND SEBORRHEA.—The frequency with which seborrhea is found, both in the dry and the oily forms, and the extreme variability of the pathological states directly connected therewith, have long rendered it a favorite theme for discussion among dermatologists. The slighter degrees of seborrhea of the scalp are so common that patients seldom consult a medical practitioner for what they consider is merely a little dandruff, preferring to confide in their hairdresser. The secondary results of the seborrheic process, on the other hand—alopecia, acne and the true seborrhoides—soon cause the sufferers therefrom to seek specialist advice. The ubiquity with which the microbacillus seborrhea (*Unna*) is found in practically all these associated conditions has led to this organism being regarded as the first cause of the seborrheic process. The addition of the microbacillus of Sabouraud results in the infection of the pilo-sebaceous follicles and the formation of the characteristic comedo of acne. At the discussion on these important subjects, which took place at the recent Dermatological Section of the annual meeting of the British Medical Association at Liverpool, Dr. Arthur Whitfield of London defined seborrhea as "a secretion which leads to pathological complications." From a study of transverse sections of the comedo and the fully developed acne pustule he amply demonstrated that in the former there was no evidence of inflammation, but rather an attempt by successive layers of epithelial cells to encyst the colonies of this organism, which was present in great abundance. In the case of the pustular lesion he showed that the staphylococci were found close to the wall of the abscess, while the macerated comedo itself contained abundant colonies of the microbacillus. It appears probable, therefore, that under certain conditions the microbacillus may produce supuration within the comedo by itself, and this claim is strengthened because it has not always been possible to demonstrate the presence of staphylococci in smears from the pus in every case.

The rôle of the bottle bacillus in seborrhea cannot be accepted as absolutely proven. It must be borne in mind that hand in hand with the hypersecretion of the sebaceous glands goes an excessive activity of the sweat glands. The

functional awakening of the various secretive organs at the period of adolescence is partly responsible for the appearance of seborrheic conditions in the youth of both sexes. The presence of some toxin elaborated from the digestive tract seems also directly connected with seborrheic troubles, for these are always aggravated by dyspepsia and constipation. Congestive acne may, too, be associated with menstrual irregularities, while in other cases chlorosis and anemia will be found to lie at the bottom of the cutaneous eruption. Pityriasis of the scalp is held by many, including Sabouraud, to be a pre-seborrheic phenomenon. At any rate, whether one takes the opposite view that seborrhea is only an epithelial hyperplasia and is not an hypersecretion at all, the two principal causative factors, the bacterial and the systemic, must be taken into consideration, and these will provide the main indications for appropriate treatment.—Amer. Jour. Derm.

INGROWN TOE NAIL.—The following is a simple and usually satisfactory operation for ingrown toe nail that has progressed beyond palliative treatment: Beginning at the free margin of the nail about a quarter of an inch from the offending side, with straight, strong, narrow-bladed, probe-pointed scissors cut through the length of the nail and continue *under the skin*, directly through the root. With forceps loosen and lift out the narrow segment of nail and nail root complete. Be sure no fragments remain. The operation is brief and the pain, even if no anesthetic is used, is not very severe. Lightly pack the narrow wound. If there is much infection apply a wet dressing, otherwise a simple pledget of gauze fastened with adhesive strips. The patient can at once walk with comfort in his street shoes, and the after-treatment is trifling.—Amer. Jour. Surg.

BUBONIC PLAGUE IN HAVANA.—J. Guiteras, of Havana, Cuba, gives an account of the recent occurrence of bubonic plague in Havana, which he says is fruitful with epidemiologic and clinical lessons. The success in promptly stamping out the disease was mainly due to the immediate public declaration of the condition and the promptness of its treatment. On the same day that they received notice of the occurrence of the plague in Porto Rico the sanitary authorities of Havana learned of an unusual mortality of rats in a limited district of three blocks, to which they gave immediate attention. Twelve days later they learned of the death of a man who had left one of the stores in this district with suspicious symptoms. The body was exhumed, but the plague bacillus was not demonstrated. A second patient in a house three squares away from the suspected blocks and two others from the infected blocks were reported later and demonstrated to be plague. Pure cultures of the *Bacillus pestis* were obtained. The first case was outside of the infected district and was supposed to have been inoculated from forage in the stable where he worked. Detailed histories of the cases are given. One of them is instructive as being of an anomalous type. It developed slowly for several days without any alarming symptoms or evident local manifestations, but terminated fatally. At present he thinks the plague infection has been banished from the city, and this is, he thinks, to a considerable extent due to the new sewerage system, which has greatly reduced the rat popu-

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lation and has prevented their carrying it to other parts when driven by the sanitary measures from the infected district. The introduction of modern sanitary plumbing has also contributed. The flees were destroyed by sulphur fumigation, and most of the stores in the district were rat proof. The crusade against rats was very thorough, a fee of 5 cents given for every rat. None of those examined have been found plague infected.—*Jour. A. M. A.*

CIRCUMSCRIBED TENDERNESS is especially significant of the location of a foreign body. Making allowance for the tenderness due to infection, when this is present, a point of persistent maximum tenderness is fairly diagnostic of the location of the body beneath that point. By pressure, with the finger tip or a slender instrument, on one spot after another in the suspected region one may elicit only a single point of tender, or a point of maximal, and several adjacent points of lesser tenderness. The single or maximal point indicates usually the location of the most superficial part of the foreign body, especially if it be a needle or sharp splinter of glass, wood, etc.; the points of lesser tenderness map out, in a rough way, the general direction of the body.—*Amer. Jour. Surg.*

THE URINE IN NERVOUSNESS.—E. B. Angell, of Rochester, N. Y., calls attention to a urinary reaction which he has observed for a number of years as an indication of toxemia. It consists in the formation of a dark pigment ring in place of the white ring in the Heller test. It varies from a dark brown to a bright red color and the easiest method to show it is to take a test-tube partly filled with the suspected urine and plunge a pipet loaded with pure nitric acid to the bottom of the test-tube; the finger covering the top of the pipet is then slowly released and the acid gradually replaces the urine at the bottom of the tube. The contact line between the urine and acid is sharp and well defined. The chemistry of this ring he is unable to give. It is certainly, he says, not due to indican or bile. The urine in these patients is specifically acid, as a rule, and of a relatively high specific gravity. A somewhat similar color ring is seen in the urine of patients taking potassium iodide, but he does not think the two are likely to be confused. He has also noticed a marked color ring in exophthalmic goiter. Whether the thyroid disorder has any re-

lation to the metabolic change in these cases he cannot say, but he has found this pigment ring here described in all nervous cases of a certain class. The characteristic symptom is one of depressed nervous action. Complaint is made of dull headache, restlessness, sleeplessness, vertigo, backache, etc., and general good-for-nothingness. The patients are more or less hypochondriacal, self-conscious, emotional. They are sallow, have distended abdomens and coated tongue and lack energy and initiative. At times the condition stimulates the more grave organic maladies, but it is wholly a functional disturbance. When corrected by a proper diet and kidney elimination through the free use of a salicylate and an alkali the cases generally clear up, sometimes in a few weeks, but in some obstinate cases a much longer period has been required.—*Jour. A. M. A.*

FINGER found that in thirty-two cases of chronic gonorrheal urethritis, in but two were the lesions localized in the membranous urethra. They are more generally found in the pendulous, bulbous and prostatic regions.—*Amer. Jour. Derm.*

DANGERS OF THE CINEMATOGRAPH.—G. M. Gould, of Atlantic City, N. J., calls attention to the frequent ocular disturbances occurring in patrons of moving-picture shows. They have been so frequent in his experience that he now makes a routine inquiry in regard to attendance at these shows. The symptoms do not differ essentially from those commonly caused by eye-strain of any kind. The most common, of course, is headache or migraine in some one of its forms. Perhaps the other most frequent symptoms are ocular and cerebral weariness; the patient who has had his ametropia corrected is liable to think that his glasses are again at fault. With uncorrected ametropia the symptoms are even more prominent and frequent. The major pathogenic faults of the cinematograph are the shakiness or tremulous movement of the pictures, the lack of swiftness and accuracy of the sequence and super-position of the pictures, the conflict of locations commanding the attention of the eyes and the generally defective illumination. The average rate of exposure of images is usually uniform at about sixteen per second, but the movements as represented are often quickened or slowed without any corresponding rapidity of the movement of the film, thus producing exhaustion of the eye. Better illumination must be demanded. While improvement can probably be obtained in some of these

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salicylic acid and antipyrine have their essential characters, though modified by close chemical union and in a very great degree deprived of the dangers of mechanical mixtures. Where no idiosyncrasy exists, SALIPYRIN does not cause any disagreeable effects on circulation or digestion. You will find in SALIPYRIN a most reliable remedy for Influenza, Catarrhs of the nose and throat, and Rheumatism.

points, Gould thinks it doubtful if singly or collectively they can be entirely avoided. When we consider the investment in the business and its popularity it will be seen that the consequent eye-strain injuries and suffering will be enormous, and there is little likelihood, he says, of their exaggeration by hygienists and physicians.—*Jour. A. M. A.*

FREQUENTLY IT HAPPENS that the passage of an otherwise impermeable stricture may be effected by means of a filiform, the end of which has been bent in various ways; into a cork-screw form or at an angle with the axis of the bougie.—*Amer. Jour. Derm.*

TITLE WAS INADEQUATE.—Uncle Harris, the old negro servant of Colonel Slemmens of Monticello, Ark., approached the colonel one morning and said:

"Could you lemme look into yo' dictionary a minute, kuhnel?"

"Dictionary!" replied the colonel "What do you want with the dictionary?"

"Well," replied the old dorky, "I jes want to find a couple of words to add to my lodge-office title. Dey done chose me last night to be gran' high most worthy exalted imperial plenipotentiary, but it strikes me dat sounds jes a little bit cheap."—*Louisville Post.*

IN PNEUMONIA AND TYPHOID FEVER the whole question of treatment is one of expectancy. There are no specifics and therefore the physician has to exercise his skill in keeping the heart of his patient going until the disease runs its natural course and ends by crisis or lysis, as the case may be. "All treatment is of no avail if the heart is not watched closely; here lies our success or failure." (Dr. W. H. Kahrs, *American Medicine*, June, 1910.)

In Digalen the physician has a valuable aid in the natural cure of these two ailments, for by its deep intramuscular injection the enfeebled heart can be toned up and cardiac syncope avoided. Furthermore, the marked hyperleucocytosis produced within 7 or 8 hours after the injection of Digalen, and which becomes nearly doubled in the next 24 hours (*Mirano, "Riforma Medica," No. 23, 1907*), is an important factor that ought not to be forgotten in the treatment of both pneumonia and typhoid fever.

In an article entitled "Typhoid Fever and Pneu-

monia" (*Medical Record*, May 4, 1907) Dr. Leonard Weber, Visiting Physician, Post Graduate Hospital, New York, made this statement: "When we cannot afford to wait for the sometimes slow action of the infusion of digitalis, we now have a rapidly acting preparation in Cloetta's soluble digitoxin, a prepared solution of which may be given by mouth or hypodermatically. This is reliable and prompt in its effect."

(Digalen is a sterile solution of Cloetta's soluble digitoxin and is marketed by The Hoffmann-La Roche Chemical Works, New York. Samples are furnished to physicians on request.)

THE TOMB OF AN ANCIENT EGYPTIAN PHYSICIAN.—The excellent work upon "The Burial Customs of Ancient Egypt," by Professor John Garstang, published by Messrs. Archibald Constable & Co., for the first time gives a scientifically complete record of the contents of the sepulcher of an Egyptian physician, and in this case of a personage who flourished under the twelfth dynasty, *circa* B. C. 2000. The deceased, whose tomb is described, was named Nefery, and in all the numerous repetitions of his name upon the two coffins provided for him is termed "a physician." That he either came of a wealthy family or amassed wealth by the practice of his profession is proved by the expense that was lavished upon his burial, his funerary furniture being one of the most complete sets of such appointments found in other than princely tombs at Beni-Hassan, where he was interred. Various and many as were the objects deposited beside his body, only two of these can in any way be considered as connected with his vocation. These are a set of writing implements, consisting of a writing tablet and a pen box, the latter furnished with a number of reed pens ready for use. The writing tablet, which together with the pen box was placed upon the lid of the outer of Nefery's two coffins, was coated with stucco and then painted, and the surface so carefully smoothed by some polishing process that it was probably possible to remove any temporary memoranda made thereupon as soon as their purpose was fulfilled. At one end of the pen box were two ink wells, in which the remains of a red and of a blue-black ink can be detected. Unfortunately no written notes survive upon the palette. Among

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the objects found in the tomb are some beautiful models of Nile boats, one having 20 rowers; also an imitation of a granary and many figures of domestics and laborers. The inner coffin, or sarcophagus, bore some quite new texts to scholars of the most archaic Egyptian religious books and explained that Nefery was a devotee of Osiris. The body had been laid upon its side, wrapped in folds of linen cloth, and was not mummified. The head was encased in a painted cartonage. This physician's tomb has been rearranged, as it was when first reopened, in the Cairo Museum, where it is the subject of much interest.—The Lancet.

BE A PLUMBER.—In choosing a profession, der most lucrative—law, medicine or der ministry—is plumbing.

In der first place, der brofession of plumbing is a pipe. Sometimes it is a cluster of pipes or a cinch, to speag plain oudt. All you haf got to know in order to be a graduate plumber is to half enough sense to gather your kit of tools und go vare someding is leaking or stobbed up. After your tools haf done der vork for you, you send in your bill or take a mortgage on der broperty, vich is der same t'ing.

After taking a first mortgage on der house, you wait patiently for der next leak, und den der house pecomes yours. Any conservative plumber vot ain't too greedy kin own any broperty on two leaks of der pipe und vun catarrh of der spigot.

In fact der only difference between a plumber und a highwayman is dot der plumber ain't afraid to use his lead pipe on der premises.

Vat is der use of studying four years at scollege to learn to earn a modest lifing ven you kin git \$20 for take a frozen fish out of a water pipe. Furdermore, a blumber takes a squint under a sink und charges \$10, but a physician has to look at you ten times to make dot amount.

A plumber kin make more money wiping a single joint den a doctor kin setting two joints or a minister condemning four joints, or a bolice department raiding six joints.

In plumbing der ideals might not pe so high, but employment in der cellar is steadier.—Exchange.

PROF. DR. CARL VON NOORDEN, First Medical Clinic of Vienna, has recently been in this country delivering a series of lectures, which have just been issued by E. B. Treat & Co., of New York, in book form under the title *NEW ASPECTS OF DIABETES*. The author's own personal experience during the past seven years with over two thousand cases of diabetes mellitus in his clinic and sanatorium form the basis of these lectures. 8vo., cloth, prepaid, \$1.50 net.

THE ABSORPTION OF DIGITOXIN AND DIGITALIS PREPARATIONS.—Gottlieb and Ogawa of the Pharmacological Institute at Heidelberg state that digitoxin is absorbed only in the intestines. This absorption always takes place very slowly and is complete under favorable conditions in five to six hours. Where there is congestion in the portal system, absorption is much delayed. It follows that there are special indications for using preparations of digitalis that are easily absorbed.

The authors found that digitoxin is absorbed more rapidly from digipuratum than from the titrated leaves. Gastric symptoms occurring while digitalis is given may depend upon irritation of the stomach or may be due to the absorption of

toxic doses. In cats disturbances due to absorption occur at the earliest in six hours, while vomiting due to gastric irritation appears within the first three hours. These experiments indicate that digipuratum irritates the gastric mucous membrane less than do the leaves. The more marked local irritation of the leaves is due to the presence of certain principles which are removed during the manufacture of digipuratum.

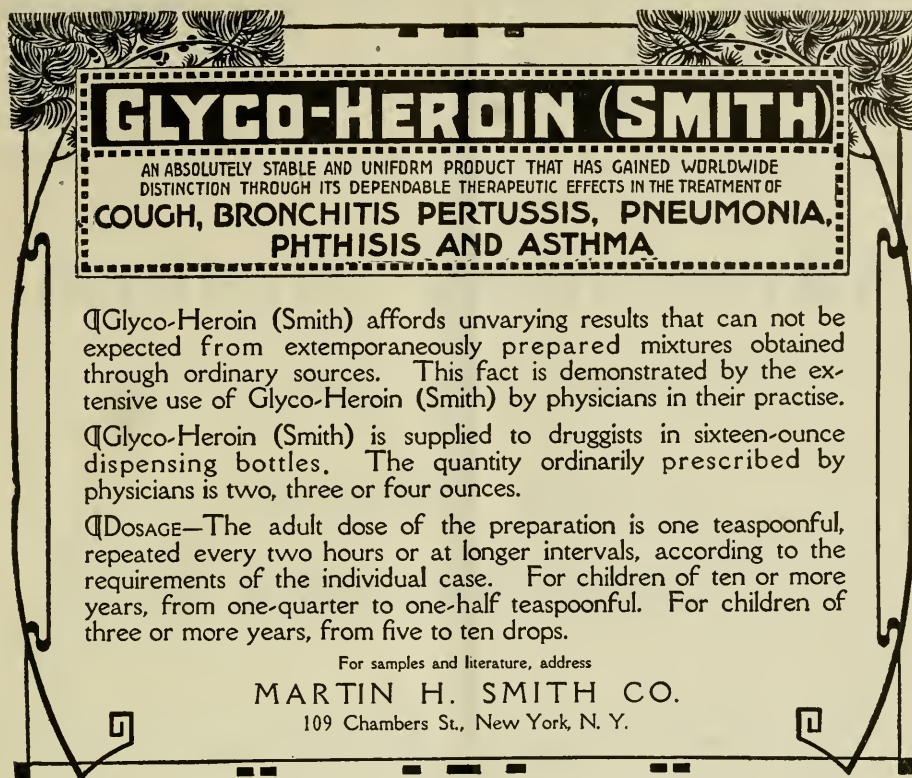
In general the irritative effect of digitalis preparations stands in a definite relation to the length of time they remain in the stomach. Of the various preparations that were tested in this direction digipuratum in solution remained in the stomach the shortest time and was absorbed most rapidly, then came digipuratum powder in suspension, while with the powdered folia digitalis titrata the results were not so favorable. The infusion is absorbed from the intestines almost as well as the digipuratum solution, but remains in the stomach much longer and very rapidly causes vomiting.

The experimental proof is thus furnished to clinical observation that in comparison to its action digipuratum has but little deleterious effect upon the gastro-intestinal tract. The active constituents of the leaves are absorbed from the purified extract more rapidly than from the leaves. In doses of the same or higher potency digipuratum irritates the gastric mucous membrane less than folia digitalis titrata and its infusion.—*Muenchener Med. Woch.*, 1912, No. 42 and 43.

INFECTIONS OF THE UPPER LIP demand prompt and thorough treatment to avoid cerebral infections. Thrombosis of the naso-labial branch of the facial vein should be watched for. It appears as a reddened cord which can be felt in the groove between the cheek and nose. Serious complications may be averted by excision of the thrombosed vein.—*Amer. Jour. Surg.*

A SEVERE BURN, By H. B. Lee, M. D., Summerville, S. C.—My first use of antiphlogistine in burns and scalds was accidental. I was called by telephone to Mr. J. T., aged 27, weight 180 pounds, brickmaker, a steam pipe having exploded between his legs, scalding him badly. I ordered that no grease of any kind be used, but that cloths soaked in a strong solution of bicarbonate of soda should be laid on the parts till I could get there. I stopped at a drug store to procure another salve I had used in such cases, and by mistake the clerk gave me two boxes of antiphlogistine. When I reached my patient I found him suffering intensely with a big blister extending from the crotch to the ankle on the inner side of both legs at least three inches wide and surrounded by a red inflamed surface two inches wide on each side.

I had used antiphlogistine before in pneumonia and in sprains, so when I found that by mistake this had been sent I decided to try it. I covered the entire injured parts with a thick layer of antiphlogistine (applied cold), put absorbent cotton over all, and after bandaging loosely to keep things in place, took Mr. T. home in my buggy. When I first saw him his face was contorted with pain and he could not suppress the groans that the agony wrung from him, but as I covered more and more of the burnt surface with the dressing I could see the expression of pain leaving his face. I gave him some medicine to relieve pain and when I called again that evening I found he had not touched the anodyne. I



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asked him why he had not touched his medicine. "Well, doctor," he said, "you told me to take that every two hours while I was in pain and I have not had any pain."

The next day I let him leave his room and in three days he was back at work. I did not touch the dressing for five days, and when I took it off the parts had healed entirely.

There are two important points in the use of antiphlogistine: First, put it on thick, thick, thick, using it hot for internal inflammations and cold for burns and scalds; second, never put cloth over the antiphlogistine, except a thin layer of gauze, if necessary, but put absorbent cotton in thick layers over your first dressing. Don't try to remove it as long as it sticks to the skin, for it will let go as soon as it has done its work. I have used this preparation (antiphlogistine) frequently since then in severe burns and scalds and yet have to meet my first disappointment in its curative power.—(Denver Chem. Mfg. Co.)

WHEN REMOVING A DERMOID CYST at the root of the nose don't forget that it may lead through the bone sutures to the meninges. Especially if the cyst or sinus is infected it is not wise to dissect it out too deeply unless persistent discharge after removal of the presenting portion cannot be cured by cauterization, etc.—*Amer. Jour. Surg.*

NINETEEN MILLIONS SPENT IN TUBERCULOSIS WAR.—Nearly \$19,000,000 was spent in the anti-tuberculosis campaign in the United States during the year 1912, according to the fourth annual statistical statement of expenditures in this movement issued by the National Association for the Study and Prevention of Tuberculosis to-day. These annual statements are based largely on

reports received from anti-tuberculosis agencies throughout the country. The figures are estimated where actual reports are not available.

The expenditures during the year for sanatorium and hospital construction and treatment make the largest single item in the total, amounting to nearly \$16,800,000. This is an increase of nearly \$5,000,000 over the same group of expenditures for the year 1911. The anti-tuberculosis associations and committees spent over \$765,000, while dispensaries and tuberculosis clinics spent over \$500,000. Over \$115,000 was spent for the maintenance and establishment of open-air schools and fresh-air classes, which is more than double the amount spent for this purpose in 1911. Official, state and municipal expenditures outside of the maintenance of institutions, which are included in the other totals, amounted to \$280,000. In addition to these figures about \$500,000 was spent by hospitals for insane and penal institutions in caring for their tuberculous inmates.

The total expenditures for the year 1912 are 29 per cent., or nearly \$4,500,000 greater than the total for the year 1911. Another significant feature pointed out by the National Association is the expenditure of public money. During the year 1912 65.6 per cent. of the \$18,900,000 spent in tuberculosis work came from either federal, state, county or municipal funds. This figure is considered by the anti-tuberculosis workers as particularly significant because it indicates the shifting of responsibility for the provision of tuberculosis hospitals and other institutions upon the municipality, county and state.

New York State again leads the country in its anti-tuberculosis expenditures. Pennsylvania comes next and Massachusetts and Colorado are in third and fourth places, respectively.

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TUBERCULOSIS AND ITS RELATION TO EVERYDAY HABITS

By Alexander Koch, M.D.

Visiting Physician to German Hospital, Brooklyn, N. Y.

SOMEONE has likened our attitude towards the infectious diseases to the undertaking of a good man who keeps an ambulance waiting at the foot of a precipice in order to convey to the hospital those who will fall from the top of the cliff, instead of causing a stout railing to be erected at the danger point, thus preventing these accidents and making the ambulance superfluous.

It is not intended to belittle the efforts towards caring for the sick and the splendid work which has been done to convince State and society of the necessity for creating hospitals for the care, and sanatoria for the cure, of tuberculosis, and the splendid results of these labors which enable us to point with pride to the fact that there will be no uncared-for cases of tuberculosis after the year 1915 in New York State. But highly commendable as are these efforts, and incalculable as is the good done by these institutions in removing sources of infection and curing or arresting incipient cases, those who believe that by these measures alone they are fighting the plague, are living under a delusion, for the ultimate victory in this great war, the length of which will not be counted by years but by decades, will not be won by caring for and curing if possible those who have fallen victims to the disease, no more than pneumonia has been conquered by treating its victims.

If we look over the weekly mortality list we find these two scourges of mankind at

the head of the causes of deaths. One week the one, next week the other may head the list; they are rivals and close competitors, each constantly aspiring to be the first.

The fight against tuberculosis and other infectious diseases will have to be fought on three separate lines. The one has already been started. By caring for all the tuberculous, the number of foci of infection will be greatly diminished. The abolishment of breeding and hiding places of the bacillus outside of the human body has been attempted but only to a small degree.

The third and most important line of attack has so far not been attempted; that is, the raising of the resistance of the individual; resistance against this and other infections to the highest degree, and its maintenance. It sounds paradoxical, but it is nevertheless true, a well man cannot get sick. In order to get sick, i. e., for his system to become a good soil for an invading bacterium, a man's resistance must first have been lowered, thereby rendering him susceptible to one or the other of the many germs continually surrounding him. In a word, his physical condition must have fallen below par through some deleterious influence; improper mode of living, improper food; exposure, overwork, loss of sleep, grief, worry, etc. It has been said that the fight against tuberculosis entails the art of keeping well. Or, as Dr. Wiley puts it, "the preservation of animal resistance to its highest state of perfection is the sovereign remedy against all forms of disease." And while the possibility and value of establishing an artificial, active or passive immunity is acknowledged, the purpose of this paper is to show how habits tend to lower resistance and vitality and subject us to the inroads of the tubercle bacilli and other dis-

ease germs. For the sake of convenience, this topic can be divided into three parts, with several subdivisions.

1. Personal or individual habits: (a) domestic and general habits. Habits in regard to the care of the skin, bathing, clothing and sleeping, eating and the mode of living.

2. Domestic habits regarding living quarters: (a) dark, badly ventilated rooms, the raising of dust in carpets, etc.

3. General habits; under which rubric would follow street-cleaning, milk supply, weather conditions, concert halls, theatres and railroad travel.

The healthy individual is one whose various organs perform their respective functions in a normal manner.

Skin.—The greatest sufferer of all the organs, is the one which is interposed between the body and the outer world, viz., the skin, which is at the same time the largest in extent. In performing its three-fold function, it is woefully handicapped through the bad treatment which it receives from the hands of its ignorant possessor. It serves as respiratory and expiratory organ, at the same time acts as equilibrator of the bodily heat. Assuming that in temperate climates the body needs some protection, the fact remains that most people, particularly men, dress altogether too warmly. I have seen in my clinical work, men peel off as many as six different layers of garments before reaching the skin. It is not difficult to understand how unfit the skin will be made to fulfill its duties through such treatment.

One has but to read the daily newspaper advertisements, or notice the exhibit of warm garments in show windows, such as fleece-lined and chamois-lined underwear, chest protectors, etc., to realize how prevalent is the habit of wearing too warm underclothing. Under such treatment the skin loses its great and important function of regulating bodily temperature. Instead of being firm and elastic, contracting and relaxing as conditions require, it becomes soft and flabby. Being covered with from four to six layers of clothing, those next to the skin being non-absorbent, the body is constantly covered with moisture, which in addition to the unsanitary condition of the skin, subjects its possessor to rheumatism, bronchitis, pneumonia, colds, etc.

Bad as over dressing is, it is far worse to wear thick underwear, the worst of all of which is woollen underwear. If in colder weather one feels chilly, heavier outer wear can be worn, which can be removed on entering a warm room. I advise my patients

to wear one kind of underwear all the year round, and overwear according to the season. This permits of being dressed the same as in summer while staying in overheated rooms, thus avoiding excessive and harmful perspiration.

Bathing.—In a large clinical practice one has the opportunity of observing skins of many patients, and it is astonishing how illy kept the great majority of them are. Not only does the surface show a lack of cleanliness but often to an amazing degree. To keep the skin in a healthy condition one or two warm baths with plenty of soap ought to be taken weekly; to maintain the heat regulating function of the skin daily ablutions with cool, not cold, water should be used. While systematically taken air baths, which means the spending of a shorter or a longer time disrobed, meanwhile doing some light exercise, thus educating as it were the skin, which will thus be able to respond to the various degrees of heat and cold and thereby prevent the mucous membranes of the respiratory tract from becoming the seat of the more or less inflammatory process known as colds, which in turn lays the foundation for an invasion and settling of the microorganisms of pneumonia and tuberculosis. This education of the skin makes it unnecessary to bundle one's self up, and insures freedom from disease, since it is manifestly impossible to change one's clothing to meet every variation of the weather.

The abundance of oxygen absolutely necessary for vital processes is well known. For this reason people should not wait until they become tuberculous before sleeping in well-ventilated rooms, or working in rooms that are poorly ventilated. Windows should be kept open whenever the weather allows and sleeping apartments ought to be well ventilated. Windows wide open, and if patients are well covered there will be no fear of catching cold.

The requirements of modern business life are such that it has been correctly said, "You can work and you can play, but you cannot work and play at the same time." The person who has worked ten or twelve hours indoors and spent one hour perhaps on a ventilated car on the way home, and then takes a heavy supper, is not fit to spend another three or four hours in a badly ventilated concert hall or theatre, then go to bed at midnight or later, after spending another hour in riding home. People who have to work indoors should make use of leisure hours, to get fresh air and then go to bed and sleep at least eight hours to be healthy and efficient.

Over-eating is just as bad as over-dressing. Many people eat too much meat thus overtaxing their kidneys. While moderation should be practiced in the intake of food, great care should be taken to dispose of the products of digestion. In other words, constipation should be guarded against, to avoid auto-intoxication and lowering of the tone of the whole system.

Buildings.—The new tenement law has done away with the old dark rooms, but modern buildings are far from being ideal. The rooms opening into so-called courtyards, which are in most cases not much more than an enlarged air shaft, do not receive the necessary amount of oxygen for the individual inhabitant. Then the rooms are much too small, and both the courtyard and the small cubic content of the room are responsible for a slow oxygen starvation. The knowledge that the best disinfectants are sunlight and fresh air does not seem to have entered the brain of the average individual. A stroll through any street will usually show the windows, even of the north side of the house, with blinds drawn, shutters closed, and even awnings, causing an artificial twilight even in midday in rooms in which people are living, instead of being surrounded by God's sunlight and air, thus making the rooms veritable breeding places for all of those germs which hate light and love darkness.

Another habit which is doing more towards preparing a good soil in the lungs of the individual for the settlement of the tubercle bacillus is the universal custom of covering the floors with carpets. They are an abomination and their use almost criminal. The dirt and filth from the streets are gathered up and retained in the meshes of the fabric only to rise in clouds under every step, and when the weekly cleaning is done the dust rises in such volume as to menace the health of the inmates. As most of the halls in the older houses have but one opening, which is the house door, the dust raised by the sweeping of the janitor has no means of escape but circulates for hours or until it finally settles again on walls, bannisters, etc. Meantime everyone passing up and down has inhaled the filth from the streets, and fine fibres of wool which are known to be more deleterious than the dust itself.

In the same category of dangers belongs the dust which is raised in the streets. Most streets are unclean, and the mode of sweeping in vogue throughout the greater part of the city is certainly antediluvian. They are swept dry and the dust arising can be seen to travel along with the wind, part of it to be inhaled by passersby, and part of it to

enter stores to settle on edibles within. Washings from fruit thus exposed have proven to be full of the flora of a great number of pathogenic organisms.

Public Habits.—The source of danger which lies in a badly kept street has its equal in an uncontrolled milk supply. Although much has been done in the way of controlling this, much yet remains undone, to the detriment of the health of the community.

The same danger which surrounds the individual in his own home or in the street is awaiting him in every assembly, lecture or concert hall. Dust and vitiated air are apt to reduce his perhaps already lowered vitality.

In regard to travel the same can be said; the thickly upholstered couches and berths of passenger cars possess the additional danger of having been previously occupied by those suffering contagious or communicable diseases.

The further one goes into the subject the larger it seems to become, but it is impossible in the space at my disposal to go into it more deeply; the aim of the paper is to show that in the fight against diseases in general and tuberculosis in particular the individual can do more than all the sanatoria combined, by maintaining his health at the highest possible standard by careful living and following the laws of hygiene throughout his life; by doing so he can possess the greatest amount of happiness this world can give.

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[Contributed to MERCK'S ARCHIVES]

TREATMENT OF HEMOPTYSIS

By Samuel Blumenfeld, M.D., of New York

It is but fitting before considering the treatment of hemoptysis to point out that it is a symptom indicating either some bronchial (especially the smaller bronchi) blood dyscrasia, pulmonary or cardiac disease. The causative factors may be briefly stated as follows:

Etiology.—1. Heredity. A weakened condition of the blood vessels transmitted from the parents may be a predisposing cause of hemoptysis especially between the ages of fourteen and thirty.

2. Pulmonary abscess or gangrene.

3. Pulmonary tuberculosis.

4. Pulmonary congestion from any source, as, for example, the inhalation of irritating substances or violent physical exercise. The hemorrhage is usually small in amount.

5. Chronic cardiac lesions especially mitral stenosis. The blood expectorated is usually small in amount.

6. Lobar pneumonia. Rusty sputum expectorated due to rupture of capillaries.

7. Ulcers of larynx, trachea or bronchi.

8. Fibrinous bronchitis.

9. Purpura, hemophilia, scurvy, leukemia.

10. Aneurysm of branches of pulmonary artery or arch of aorta.

11. Vicarious hemoptysis during menstruation or amenorrhea.

Treatment.—It is, of course, highly important to ascertain the cause of the bleeding. If there has been considerable hemorrhage the patient must be kept as quiet as possible in order to avoid increasing the hemorrhage. The treatment should aim first to stop the hemorrhage and second to prevent a recurrence.

Where there is organic disease of the heart the lesion must be treated by rest so as to reduce the power of the heart contraction. Heart tonics should be given such as strychnine or digitalis, which energizes the systole and prolongs the diastole.

But of prime importance, however, in all cases, is rest. If the patient is bleeding and is frightened allay his fears by assuring him that in all probability his hemorrhage is not dangerous. At the same time it is a good plan to warn him that another hemorrhage may occur and that if it should do so not to get frightened. This procedure gives nature a better chance to exert her curative influence by overcoming the excitement and restlessness usually present.

The patient is directed not to talk louder than a whisper. He should be put to bed with head and shoulders elevated and should not be allowed to change this position. If he is very restless and the hemorrhage of any severity, a hypodermic injection of morphine, $\frac{1}{4}$ grn., and atropine, 1/100 grn. will check the hemorrhage almost instantly. It quiets the patient, allays the cough and thus wards off another hemorrhage. An ice-bag applied to the precordia lessens the rapidity of the heart and lowers the blood pressure.

Before leaving the bedside I direct the patient to swallow pieces of ice if hemorrhage recurs. I find either of the following prescriptions of value:

Calcii Lactatis3ijss
Div. in pulv. No. xx.

Sig.: One powder every three hours.

Stypticinigrn. x

Plumbi Acetatisgrn. xx

Pulv. Digitalisgrn. x

Pulv. Opiigrn. v

M. et div. in pil. No. x.

Sig.: One pill every three hours.

The hemostatic properties of stypticin are due to its power of constricting blood vessels. Lead acetate increases the coagulability of the blood. Digitalis energizes the systole, prolongs the diastole and so reduces the rapidity of the heart. The pulvis opii quiets the patient and lessens the cough. If the pulse is full and strong aconite or other arterial sedatives are administered. If hemorrhage is due to congestion dry cups to the chest are of value. When vomiting occurs due to swallowed blood I prescribe anesthesin, grn. iij to the dose in conjunction with calcium lactate grn. viij in powders, one powder every three hours. Anesthesin diminishes the gastric instability.

Dietetic.—Food should be cool, nourishing and non-stimulating. Warm or stimulating food or drinks should never be given.

Prophylactic measures should be directed to the cause. Bronchial irritation must be prevented and any bronchitis, however mild, should receive careful attention. Liberal and nutritious and easily digestible diet, and moderate exercise are beneficial. Patient should avoid physical and mental exertion, and should not return to active business for two or three months.

42 Seventh St.

ON THE PRINCIPLES OF THE TREATMENT OF ACUTE AND CHRONIC NEPHRITIS*

By Prof. Dr. Carl von Noorden

Professor of the First Medical Clinic, Vienna.

In regard to many questions concerning the treatment of nephritis, there is complete accord among all physicians; I shall pass quickly over such points. On the other hand other questions are debatable. One notices, also, the tendency at present to systematize the treatment of nephritis; i. e., there is a tendency to generalize in regard to therapeutical measures which, though excellent for certain cases of nephritis cannot be applied without reflection to other forms, for which they are not suited. On this subject we shall have something to say later on.

A. ACUTE NEPHRITIS.

There is little difference of opinion concerning the treatment of acute nephritis. We are dealing with an acute inflammatory process, which demands, that we spare the diseased organ every bit of unnecessary work. We try, moreover, to divert a part of the work which really belongs to the kidneys, to other organs of the body. On these grounds the following essential principles can be established:

*Lecture delivered at the Post-Graduate Medical School and Hospital, Post-Graduate, Jan., 1913.

1. *Bodily Rest*.—We order rest in bed in all acute inflammatory processes, no matter which organ is involved, and we have every right to do this in acute nephritis as well. We keep the patients in bed, until the nephritis is completely cured, or until it has entered into a chronic stage, in which rest in bed can no longer be of service. *When* this point is reached it is by no means easy to decide.

We find that the general conditions of the patient has become quite good, we find normal urine-amount, normal specific gravity; we no longer find renal elements microscopically, except a few hyaline casts to which we cannot, however, attach any significance.

If we apply more delicate tests, we find that the power of the kidneys to eliminate urea, sodium chloride, lactose and water is excellent. The heart is working normally and the pulse and blood pressure are likewise normal. But the urine still contains some albumin, now more, now less. Such a stage can last weeks or months. Are we justified, under these circumstances, in letting the patient up or should rest in bed be maintained, with the hope that it will lead to disappearance of the albumin? I have the impression that rest in bed is often too long persisted in. The patients are kept in bed for weeks or months, although there is no longer any prospect of its controlling the albuminuria. The physician himself has perhaps given up hope long ago that the albuminuria will disappear through these means; but he still keeps the patient in bed, in order to avoid later criticism that he has acted thoughtlessly and let the patient get up too soon.

Such a long rest in bed, lasting many months, is by no means a matter of indifference for the organism. One is dealing usually with children or adolescents, who cannot do without a certain amount of exercise for proper development of their bodies. The long rest in bed acts detrimentally on the development of their muscles and heart and also on the blood formation. It is, moreover, self-evident, that the psychological development and balance are endangered. All these are reasons to shorten the period of rest in bed after an acute nephritis as much as possible.

The most important criterion for the time, when it is permitted to leave the bed, is the disappearance of red cells and kidney epithelium from the urine. As long as these elements are present, the acute stage of irritation is not over—after their complete disappearance one should wait two weeks and then, despite continuance of al-

buminuria, the patient should be allowed to get up, provided, of course, that all other symptoms of nephritis have disappeared. It will then frequently be seen that in the first days after giving up complete rest, the albuminuria increases somewhat. This lasts only a short time and should not deter us from holding firmly to our conclusions. On the other hand the recurrence of red cells and renal epithelium should be regarded as proof that we have been too hasty and then it is necessary to order rest in bed once again.

What prognosis is to be given in the case of a patient, whose urine still contains albumin, constantly or occasionally, after the *real acute* nephritis has passed? Here there are three possibilities; and which of the three possibilities materializes is, in my opinion, entirely independent of keeping the patient in bed months after the end of the acute stage or of letting him up and accustoming him carefully and gradually in the use of his muscles. However, even under the most favorable conditions one must be careful for a long time and avoid *over exertion*.

The three possibilities are:

a.—The albuminuria finally *does* disappear after a few weeks or months. This is naturally the most favorable event. I must mention at once, however, that not rarely in these cases albumin again appears after a period of freedom of many months or even a few years, and that this is then usually a very bad sign; it is a sign that in the meantime a chronic nephritis has developed insidiously and unnoticed. It is necessary therefore to advise every patient, who has once had an acute nephritis, to have the urine examined from time to time for several years.

b.—The albuminuria persists, but it is not serious and it is not the sign of a *progressive* nephritis. We do not find, either now or in the future, the least morbid sign elsewhere in the body that would point to the kidneys. We find constantly normal elimination on the part of the kidney and we find perfectly normal conditions in the heart and vessels. It is difficult to say what anatomical conditions are present in the kidney. It is only a figure of speech when we say: "The vascular walls of the glomeruli have been so changed by the inflammation that they remain permanently permeable for albumin; aside from this the kidney is healthy."

This post-nephritic *harmless* albuminuria is very frequent. Of course one will furnish certain prophylactic precepts to an individual who shows this type of albu-

minuria; he will be warned against leading a mode of life from which doubtlessly would arise damage to the kidneys. For it is probable that under the influence of such noxa his kidney will suffer more easily than that of a normal person who never had any renal irritation. On the other hand such patients need *not* undergo all the deprivations which must be imposed in actual chronic nephritis. He may be permitted to work and to marry. I would also approve of his candidacy for life insurance. The patients may reach an advanced age without any other sign becoming apparent that would arouse the suspicion of a true nephritis.

c.—The albuminuria indicates that from the remnants of the acute nephritis a chronic nephritis is slowly developing. Nearly always in this case we are concerned with the form that we to-day call "secondary contracted kidney." The blood vessels of the kidney later become diseased too, and the symptoms of the so-called "vascular contracted kidney" are associated. The disease results in death in a few years, often only after one or two decades.

It is of course of the greatest importance to recognize as soon as possible with which of the three possibilities we have to deal in the given case. In the beginning this is very difficult, in the first months almost impossible. The diagnosis can, however, be made with considerable certainty three or four months after cessation of the acute stage. The composition of the urine, it is true, teaches us nothing, for usually only albuminuria is present and all formed elements are lacking. Even if a few hyaline casts are found, no importance is to be attached to them. They may be present in the benign forms and on the other hand may be absent for years in the severer types. The careful examination of the circulatory organs is therefore all the more important. When a *true* chronic nephritis develops that throws a shadow on later existence a *definite rise in blood pressure* soon results and a hypertrophy of the left ventricle, that can be recognized earlier and more certainly by X-ray examination than by percussion or auscultation. The more delicate tests for the determination of the renal functions likewise soon show certain small deviations from the normal.

All this demands very careful observation of the patient. One or two weeks are required to collect the entire evidence that is necessary for a positive diagnosis and prognosis. We have systematically developed this method of examination in my clinic and the subsequent course of the

cases has constantly confirmed our conclusions.

2. *Diet*.—After these discussions we come to the question of regulation of the diet in acute nephritis. We must arrange the dietary to limit as far as possible the products of metabolism that demand work from the kidneys. The kidneys eliminate

a.—The metabolic products of the proteids.

b.—Nearly all salts, especially phosphates, sulphates, chlorides.

c.—Water.

We limit therefore first of all the proteids or exclude them entirely. By so doing we diminish the amounts of sulphates and phosphates, as these salts are in great part derivatives of the proteids. We have learned in the last ten years—particularly from the recent excellent investigations of your fellow countryman, Professor Chittenden—that the proteids can be reduced to an extraordinary degree for long periods of time without any danger to the bodily strength. We know, moreover, that we can deprive an individual of *all* food for a week without any particular danger. It is not necessary, however, or even especially beneficial to the kidneys to starve a patient completely. For a fairly large quantity of body proteid is decomposed during starvation and thus a considerable amount of the products of proteid metabolism would reach the kidneys. We can help ourselves by eliminating proteids entirely and giving large amounts of carbohydrates. The end products of the carbohydrates are carbonic acid and water. Carbonic acid is excreted by the lungs; a great part of the water also is eliminated by the lungs and skin. At the same time the cleavage of the proteids is reduced to a minimum under the influence of large amounts of carbohydrates. A regimen is thus achieved which makes practically no demands on the renal function and we attain the chief prerequisite for a speedy and complete restoration of the organ.

We must of course withhold *salt*, as its elimination would be a difficult task for the diseased kidneys. The diet is limited therefore to considerable amounts of sugar, to fruit juices and fruits rich in sugar, to gruels of finely ground rice, corn, wheat, or potato starch. Thoroughly washed butter may be added, as pure fat is also oxidized to carbonic acid and water and does not tax the kidneys. I have often administered such a diet to my patients with acute nephritis for one or two weeks, and have been much more satisfied with the results than formerly. Formerly I gave nothing but milk, as is still the custom with most

physicians. But milk contains large quantities of proteids with many phosphates and sulphates. Even if poor in sodium chloride and free from extractives a milk diet burdens the kidneys with a decidedly large amount of work.

I advise giving milk only after the most dangerous stages of the acute nephritis have been overcome and when the abundant diuresis, the increasing content in sodium chloride and the decrease in albumin show that the kidneys have regained their power of elimination. The time has then come to enlarge the menu gradually. In addition to milk are added preparations of oats, barley, puree of potato, puree of carrots, leguminoses (peas, lentils, white beans), boiled green vegetables, cocoa, yolk of eggs, light tea biscuit, etc. Salt should for a long time be excluded carefully from the diet. Considerably later may be added white of eggs, river fish, boiled meat.

If the nephritis is completely cured, an average normal diet may be resumed three or four weeks after the last appearance of albumin, but the patient should, for a long time, eat meat only once daily, should avoid spices and alcohol and should take as little salt as possible. If the albuminuria does not fully disappear the patient should be upon a diet that corresponds to the therapy of chronic nephritis. This will be considered later. The diet is maintained until it has been determined that the albuminuria is of innocent character.

The question of how one should regulate the *administration of water* in acute nephritis demands special consideration. Formerly it was customary to give large amounts of water. The kidney was to be "washed out"—this was the reason advanced. Alkaline waters were particularly advocated. The waters of Bilin, Fachingen, Vichy, Wildungen, etc., were advised and used above all others. After it was recognized with what difficulty the diseased kidney eliminates sodium chloride and other salts, the use of these mineral waters was abandoned in acute as in chronic nephritis. Fruit juices are preferable or thin decoctions of tea (Chinese tea, tea of grass seeds, of dried strawberries or raspberries, tea of blackberry leaves, etc.), or simple pure water. In this severe stage of an acute nephritis it is useless to attempt to wash out the kidney by large amounts of liquid. Diuresis cannot be increased in this stage, no matter how much water is given. Free ingestion of liquids only serves to increase edema.

It is a different matter when diuresis shows a tendency to increase, as in convalescence. At this time large amounts of li-

quids are of service. I would recommend strongly, however, to avoid the actual mineral waters. They contain too much salt. Use rather a simple pure water which is, moreover, better for everybody, than the mineral waters rich in carbonic acid, which are used so extravagantly and foolishly nowadays. This bad habit, detrimental to health, has arisen from lack of proper spring or tap water in cities or in the country. From fear of bacilli or other dangerous contaminations, the people had recourse to the carbonic acid mineral waters. It would be better to use a pure bottled spring water if the water supply of the cities cannot be trusted. I have advocated this view frequently and in many places and am delighted to find that the same opinion has been reached in your country and that a simple pure spring water is being introduced instead of the carbonic acid charged waters.

3. *The Encouragement of other Methods of Elimination.*—In the third place we have the indication in acute nephritis and often in chronic forms of nephritis as well, to divert the elimination of metabolic products from kidneys to other organs. This is comparatively easy as regards water, but very difficult when it concerns solid constituents. The elimination of urea by sweating is by no means as great as was formerly supposed. It can be safely said, indeed, that it hardly pays to subject the patient to the debilitating process of the sweat bath in the hope that a part of retained urea and other products of albuminoid decomposition can in this way be eliminated from the body. The elimination of sodium chloride by sweating is a little more important, but the elimination of urea and sodium chloride which can be effected by strong cathartics is decidedly greater. This method is employed less frequently than formerly—which I think is a mistake. Of course the purgation should not be carried so far as to threaten collapse.

In general it should be remembered that in acute nephritis *water alone* can be diverted into other channels of elimination. On this account the various diaphoretic measures have really no justification except in cases with edema, when dehydration of the body is aimed at. This applies to acute as well as to chronic nephritis. There are several methods of removing water from the body of the nephritic patient.

a.—You may give drugs which stimulate the kidneys themselves or which improve the circulation. In chronic nephritis these are employed very frequently and the entire series of cardiac stimulants and diuretics has to be considered. On the whole these

remedies have been of little service in acute nephritis; the use of many of them is to be discouraged as they irritate the diseased organ and this contradicts our principle of sparing the diseased part as much as possible. The theobromin preparations alone seem often to be of service in acute nephritis. They dilate the finer capillaries of the kidneys and favor the blood supply of the diseased organ.

b.—The ingestion of fluid may be limited. This is often done, though for other reasons, in *chronic* nephritis, particularly in cases of the so-called "vascular contracted kidney," with most excellent results. In acute and in the so-called parenchymatous nephritis, however (also in late stages of the so-called "secondary contracted kidney"), the fluid cannot be greatly restricted for any length of time, for the patients are limited to a diet that contains a good deal of water (for example milk) or that requires water in its preparation.

c.—The amount of salt may be reduced to a minimum. The tissues thus become poor in salt content, and water can no longer be retained in them, in consequence of the change in the osmotic balance. This holds true, however, only for those cases, in which the difficulty of salt elimination (through the kidneys) is the chief cause for the retention of salt in the body and further for the development of edema. This is the case in typical cases of the so-called parenchymatous nephritis, in rare cases of so-called "secondary contracted kidney," and in some cases of acute nephritis. In the majority of cases of nephritis, however, besides other causes for edema (as damage to the capillary walls by toxic substances), the power of the kidneys to eliminate water is much more limited than the ability to eliminate salt; then forbidding salt simply makes food distasteful to the patient and still further reduces him. Thus, the rule to forbid salt, so beneficial in many cases, can become most harmful if applied universally as is the tendency nowadays among many authors and practicing physicians. In acute nephritis the object of salt deprivation is, above all, to spare the diseased organ the labor of the salt elimination.

d.—Divertation of water elimination to other organs. I can dismiss diaphoretic methods with a few words. Their results are known to every physician. It should be mentioned that too much liquid should not be given when diaphoretic cures are ordered. Otherwise a vicious circle is established and material is constantly being pumped into the body through *one* channel,

while being removed with difficulty from another.

We obtain the same effect as from sweat baths through residence in a climate that is at once hot and dry. These are the characteristics through which the climate of the Egyptian deserts acquired its reputation. One can scarcely find equally favorable conditions in any other place in the civilized world during the winter months. The dryness of the air is much more important than the absolute height of the thermometer. The dry climate causes rapid evaporation of moisture and the last remnants of edema, which would not yield in the moist climates of the north, despite all therapeutical efforts, may disappear in a surprisingly short space of time, even though the patient in Egypt does not limit liquids or take any particular diaphoretic cures. (The more I have learned to know the Egyptian climate through personal experience and the more I have become convinced by the methods of cure and the results obtained there, the more I have become an advocate of such cures.) It must be mentioned here, however, that the influence of Egyptian cures on the *albuminuria* is relatively small; this influence is only noticeable and permanent in convalescents from acute nephritis. In chronic nephritis it is the disappearance of edema and the benefit to the general condition that make the Egyptian winter cures so valuable.

For those who are not acquainted with the local conditions in Egypt I would add that for the time being only two places are available for any long stay of nephritic patients. The first is Assouan, where patients are well cared for in good hotels or in the small tent-sanitorium of Fräulein Neufeld in the desert. But the most important place at this date is Helouan lying outside of the gates of Cairo where the beautifully equipped sanitorium Al-Hayat offers all the best hygienic and dietetic advantages. There are also a few smaller sanitoria available for more moderate demands.

e.—Puncture of the skin affords another method of getting rid of fluid. It is used only in the worst cases where all other methods have failed.

Many other tasks will naturally present themselves to the physician during the course of an acute nephritis. I shall not consider them as I am concerned only with the formulation of the principles of treatment. Only two points should be considered briefly:

(a) Venesection. In threatening uremia profuse bleeding is often of the greatest

advantage. I believe that venesection is frequently a life-saving factor.

(b) Decapsulation of the kidney. When in the course of an acute nephritis complete or nearly complete anuria results, one may wait one or two days perhaps without proceeding with drastic measures. The first thing to try is venesection. If this gives no result, one should not delay to split the capsule of the kidneys and so relieve the tremendously swollen kidney from the pressure. The number of cases is already considerable in which this procedure has led to satisfactory results.

B. CHRONIC NEPHRITIS.

Turning now to the treatment of chronic nephritis I can pass quickly over many points in referring to what has already been said.

1. *Rest and Exercise.*—It is only in cases of chronic nephritis with *edema* that it is customary and justifiable to order a complete rest cure for the patients. It is not necessary and not even advisable that they remain constantly in bed. If climatic conditions are favorable one should get patients out in the fresh air as is usual for example in Egypt.

In all other forms of chronic nephritis a certain amount of exercise should be allowed under all conditions. The muscles should be exercised and strengthened and one should not be deterred from this even if at the start albuminuria increases somewhat. Usually this is only transient. Even if it should recur repeatedly too much weight must not be attached to it as the denial of all bodily exercise will have more serious consequences for the entire organism than a trifling increase of the albuminuria.

The occurrence of blood in the urine is the only thing compelling us to deny any exercise at all.

We shall also in most cases have to allow the patient to attend his business, provided that this does not entail great bodily or mental fatigue.

2. *Over-exertion is of course to be avoided*—not only to protect the kidney but particularly to avoid danger to the heart, the sheet-anchor of the nephritic. It is the business of the attending physician to watch over his patient scrupulously and to interfere at once when he observes signs of bodily or mental fatigue. He must also see to it that the patient takes frequent long vacations, which may be utilized either for rest, pure and simple, or for particular courses of treatment, whether dietetic or hydrotherapeutic.

3. *Diet.*—Chronic nephritis presents us with different indications from those of the acute form. In the latter we have to do with a relatively short period of sickness and we are able, during the one or two weeks, or a little more, to insist on particularly drastic restrictions of diet. It is clear, however, that on the basis of the diet which I recommended for acute nephritis a man's strength cannot be maintained over long periods. We must not forget that chronic nephritis drags along over many years—often a score or more. It is all-important that the general strength be unimpaired over this period of years and decades. Any treatment which results in a weakening of the general condition may therefore be discarded at the start.

At this point I must emphasize the fact that this important axiom is not infrequently overlooked in the modern treatment of nephritis. Too often the methods of treatment proper for acute nephritis are blindly applied to the chronic form. Frequently *so much* is forbidden that the patient cannot maintain or increase his strength with the meagre allowance given. Often the physician's dietary directions have considerably wider consequences than were intended, because the patient himself overzealously allows himself less than the physician has directed. Or he may be forced to a dietary at which his palate rebels and in consequence eat too little and lose weight and strength. For example, forbidding common salt often has this result. Whatever the reasons may be, it is certain that at present many patients with chronic nephritis are not nourished sufficiently to the needs of the bodily strength, and it is further certain that inexact or misunderstood directions from the doctor are largely responsible. The physician must therefore not content himself with such general directions as he finds in text-books of dietetics under the name of the disease, but must convince himself by constant experiment that these are fitted to the particular needs of the individual in question. At the bedside we have to do not only with a disease but with a sick individual, and we must therefore look to all the characteristics, which he has developed in the course of years and which differentiate him from the generality of mankind. This necessity is nowhere more binding than in the field of dietetics, and its importance is far greater in chronic disease than in acute. I commonly send patients with chronic nephritis to the sanatorium for several weeks and study with care the influence of my dietary prescriptions upon individual functions and

upon the organism as a whole. I often have to modify considerably my original mode of treatment, but I am certain at the end that the directions for the future which I give the patients on discharge will exactly fit his case.

When I say that the physician must see to it that the patient with chronic nephritis is well and sufficiently nourished this must not be taken to mean that he should be overfed or allowed to become fat. On the contrary, any considerable gain in weight is harmful to the nephritic on account of the danger of cardiac weakness, through obesity. On the other hand it is frequently necessary to take measures against any considerable excess of bodily fat.

In the necessity on the one hand of sparing incompetent kidneys and on the other of so arranging the diet as to conserve the bodily strength we find ourselves on middle ground, where a compromise must be struck to accord with both indications.

Of the three main groups of food stuffs, proteids, fats and carbohydrates, the two latter (fat and carbohydrates) entail no overloading of the kidneys, as we have already observed. But all the more this is done by the metabolism products of the proteids. Therefore we shall limit the proteids, giving, however, *enough to guarantee the maintenance of bodily strength*. My impression is that patients with chronic nephritis do *not* do well, if the proteids are reduced to the extent theoretically allowable in normal people (as shown by Chittenden). I recommend allowing an average of 80 to 100 Gm. of proteid. A third at most may be in the form of meat; this corresponds to 130 to 160 grams of meat weighed raw. I believe it is more or less immaterial what kind of meat is taken. The difference in chemical constitution of red and white meat is not great enough to justify the total exclusion of the former. It is a blessing to a patient if he can have a considerable choice in varieties of meat. Some 40 to 50 per cent. more fish may be taken than of meat. One must emphasize that only fresh meat should be used. Preserved meats, with the exception of mild ham, are to be forbidden.

The greater part of the remainder of the proteid that is permitted should be taken in the forms of milk, eggs and vegetable albumens.

The amount of fat and carbohydrates to be allowed will depend entirely upon the general condition of nutrition. It is a simple matter to regulate the amount of the desserts, vegetables, fruits and sweets so as to prevent the undesirable accumulation of fat

or any unsought for loss in weight. I only need to mention the fact that no strong spices must be used in the preparation of the food and that nephritics must be particularly cautious in regard to the consumption of alcohol.

There are, however, two more points of special importance, namely, the intake of salt and the intake of fluids in general.

Salt.—It is not necessary to insist upon the same restriction of common salt in chronic nephritis as in the acute nephritis, but patients should be directed to restrict the intake of salt in so far as it does not interfere with the palatability of their food. One does not want to go so far as to make their food repulsive to them by strictly forbidding salt. This is frequently followed by disastrous results. I have known several patients to whom the salt free diet became so repulsive that they lost all desire to eat and became very poorly nourished. They only flourished again when the salt was partially or wholly restored. I must again insist that the restriction or prohibition of salt is only *entirely justified* when there are edemas. In the other forms of nephritis the restriction of salt is *desirable* on the following grounds:

a.—The elimination of salt demands a great expenditure of energy in the kidney.

b.—The more salt that is taken the greater demand for water. In most cases of chronic nephritis it is desirable to cut down the water intake and this is rendered difficult if the food be strongly salted.

It is therefore evident, in view of the above, that one must compromise between the things which damage the kidney and those which damage the general health, and salt should be restricted in so far as possible, without in any particular case injuring the body nutrition. More severe measures are only necessary in acute exacerbations of chronic nephritis, particularly if edema occurs.

Water Intake.—About twelve years ago I first pointed out that patients with chronic nephritis, as a rule, drink too much water, and that this abundant intake of fluid is almost as injurious as it is in cardiac cases. All the water that is consumed must be carried through the circulatory system before it reaches the kidneys and the heart must bear the cost of distribution. Moreover, the heart must furnish a very great amount of energy to supply the necessary pressure to bring about the *elimination* of water. This is one of the reasons why, in nephritis, the heart in connection with the innervation of the vessels furnishes a very high blood pressure. The high blood pres-

sure, however, is a very great danger. On the one hand it in a great measure imposes additional work upon the heart and contributes to its early exhaustion. On the other hand the high blood pressure damages the blood vessels and makes them brittle. Experience teaches that a wise restriction of the fluid intake is one of the most certain methods of lowering the blood pressure; and experience further teaches us that the strength of the heart improves considerably as soon as the water intake is restricted. Occasionally as a result of these methods alone one sees a greatly dilated heart return to a normal size.

The restriction of water is particularly important and of value in those cases of so-called "vascular contracted kidney," which is by far the most common form. The kidney eliminates the solid constituents in a satisfactory manner, if one limits the total amount of fluid taken in 24 hours to $1\frac{1}{4}$ to $1\frac{1}{2}$ liters. It is well to have one "drink day" in each week on which the amount of fluids is raised to $2\frac{1}{2}$ liters.

If, on the other hand, one is dealing with a case of marked so-called secondary contracted kidney (a much less frequent and much more dangerous form), one must allow a larger amount of fluid, that is, about two liters in 24 hours. One can do this all the easier because in this form the heart is much less endangered than in the other form. The greatest danger here is the retention of the products of metabolism.

That one must not allow these patients to supply their liquids by the consumption of waters which are rich in mineral constituents has been explained above. Simple, pure spring water or fruit juice is the best drink for them.

Occasionally in cases of chronic nephritis, and in cases of convalescence following acute nephritis, it is well to allow patients special drink cures with mineral waters feebly alkaline, but poor in chlorides. According to my own experience the cures which have been proven best are those in Bruckenaue and Wildungen, and especially those in Neuenahr (Rhine Province, Prussia), the latter watering place having recently acquired special importance in the treatment of renal cases. All patients, naturally, are not suited for these places, especially those whose hearts have already been weakened.

4. *Stimulation of Other Secretions.* (Climate).—This is not a matter of great importance in chronic nephritis. Considerable use is made of this agency only when acute exacerbations arise and in the end stages. Reference may be made to the remarks

above as applying to chronic nephritis as well as to acute. Of the methods above mentioned certainly the most important is climatic therapy. Here also a warm dry climate is in general to be preferred. While the albuminuria is not influenced the general condition often improves to an astonishing extent. Warning should be given, however, against sending patients with weakened hearts into hot climates. In Helouan (Egypt) such patients can stay till about the end of March. At this time they should leave Egypt. The hotter Assouan is contraindicated.

5. *Care of the Heart.*—Of utmost importance is care that the cardiac competence be maintained in chronic nephritis. On the condition of the heart depends the fate of the patient. This is particularly true of the vascular type of contracted kidney, which gives the picture of a blood-vessel disease almost more than that of a kidney affection. In treatment chief emphasis is to be laid on prophylaxis for when once real signs of cardiac weakness appear much may still be done in palliation, but a lasting danger is ever present. Of prophylactic value are:

a.—Systematic limitation of fluid intake. Of this I have already spoken.

b.—Avoidance of physical or mental over-exertion. This also has been discussed.

c.—Avoidance of articles which act as poisons to heart and vessels; hence warning is to be issued against abuse of alcohol, tobacco, coffee and tea.

d.—Prophylaxis and careful treatment of the attacks of bronchitis to which such patients are especially liable. They are ever a danger to the heart. It is such attacks, which often make the recommendation necessary, to seek a better climate during the cold seasons. For this purpose as well Egypt occupies a leading position. The more popular French Riviera is less suitable. Affections of the mucous membranes are quite common there and seem even commoner in recent years. You have suitable places also in this country. I mention the Carolinas and California.

e.—Proper measures against any tendency to obesity. Overweight always entails a notable strain on the heart. Persons who are strong and well can carry the burden. But for nephritics, whose hearts are already sorely beset, obesity means always an increase in the danger.

f.—Avoidance of considerable altitudes. Nephritics should not be sent to places of over 1,000 meters altitude. In later stages of the disease even this is too high. A

stay in regions of low atmospheric pressure adds to the work of the heart.

g.—Carefully prescribed gymnastics for the heart to add systematically to its strength. Use is made of graduated climbing exercises (Oertel's Terrainkuren), as well as of medico-gymnastics.

h.—Stimulation of the peripheral circulation by baths and massage. It is a common belief that patients with chronic nephritis take cold water treatments badly. If these treatments are carried out with care and under expert direction they are better borne than hot baths. This is especially true of the vascular contracted kidney. Luke-warm baths followed by cold douches and vigorous rubbing are the best form for hydrotherapeutic treatment at home. These may be used in rotation with alternating current electrical baths, or with carbon dioxid baths. The former are now generally preferred in sanatoria, they have in fact an excellent effect on the peripheral circulation. Carbon dioxide baths may well be restricted to places where natural carbonated springs are found. Nauheim of course comes first in such a list; also Neuenahr and Wildungen, already recommended for nephritis, have such springs. Franzensbad, Homburg near Frankfurt a. M., Kissingen, Marienbad, Schwalbach, Soden near Frankfurt a. M. are also to be mentioned. Use of carbon dioxid baths at home is not to be recommended. The baths are much too stimulating to allow of a patient's carrying on his professional business at the same time. They should be restricted to sanatoria and bathing resorts. The more threatening or the more pronounced the signs of cardiac weakness so much greater in importance is to be laid upon carbon dioxid baths. But do not send patients with very high blood pressure to these baths.

i.—In a well compensated interstitial nephritis no drugs are needed. At the same time it is not unwise to let the patient take from time to time small doses of diuretin or other theobromin preparations. Fifty cgm. three times a day suffice. I often recommend to patients that they take such a course of diuretin every third or fourth month, the course to last the whole month. This is especially useful in cases where there are signs of coronary and myocardial affection. Theobromine dilates the arterioles of heart and kidney and in this way favorably influences their nutrition.

I must warn against the use of iodine preparations. In chronic kidney disease iodine is very poorly eliminated, much less easily than chlorine. It is not reasonable

on one hand to forbid the chlorides and on the other to prescribe the iodides. It makes no difference whether the choice is iodide of potassium, iodipin, sajodin or another, the effect on the kidney is the same.

The vaunted effect of iodide upon the vessels is so uncertain and so doubtful that we are not justified for the sake of that presumed effect in putting the kidneys doubtless in danger.

I will mention here only in passing that in later stages of the disease the stronger heart remedies will be indicated, such as digitalis, strophanthus, sparteine, caffeine, as well as nitroglycerin and camphor, and under certain circumstances even the narcotics.

At this point I shall bring these considerations to a close. I should far exceed the limits of time allowed me if I undertook to treat of the many complications which may arise in the course of an acute or a chronic nephritis, and which must be met by changes in the treatment. I took as my task only to lay out certain fundamental principles of treatment. It will be satisfaction enough for me if out of these remarks the lessor is well remembered, not to treat nephritis by formula, and in the concern for the affected kidneys not to forget the consideration due to the whole organism.

DIGITALIS GLUCOSIDES AND ALLIED DRUGS

(Continued from page 18)

THERE are a number of vegetable principles which in spite of their different derivation and in spite of somewhat wide differences in their general chemical properties possess a pharmacological action so analogous to that of the digitalis substances that they can without hesitation be united to form a definite pharmacological group. For this group Schmiedeberg has suggested the designation "digitalin group," and which has been generally adopted. Besides the digitalis substances proper described above, i. e., the substances obtained from digitalis purpurea, the bodies to be described below, which are derived from other vegetable sources, belong to this digitalin group. In referring to these I shall in general restrict myself to those which are used therapeutically owing to their properties and actions being of pharmacological, physiological and clinical importance; while with regard to their chemical constants the reader should refer to the literature on the subject, in order that too much space may not be taken up here.

Adonidin.—Several species of *Adonis* (belonging to the natural order Ranunculaceæ) have for a long time been considered of value as substitutes for digitalis leaves in heart disease, and more especially since Bubnow carefully investigated both physiologically and clinically the leaves of *Adonis vernalis*. This author discovered the striking fact that the *Adonis* herb not only possesses the entire action of digitalis, but also has two invaluable properties, namely that it is free from cumulative action and that even when used for a period of many months no diminution of its therapeutic effects is observed. On account of these very favorable reports V. Cervello examined the leaves of *Adonis vernalis* and *Adonis cupana*, Y. Tahara and Y. Inoko the leaves of *Adonis amurensis*, and N. Kromer the leaves of *Adonis æstivalis* with reference to their active constituents.

Cervello, as a result of his researches, found a glucoside, which he called adonidin, the isolation of which from *Adonis vernalis* and *Adonis cupana* he described minutely. The pharmacological test of its action showed that it possessed the same action as digitalis, and on account of the absence of cumulative action already mentioned, adonidin promised to be of great utility in therapeutics. Tahara found in *Adonis amurensis*, which is cultivated as an ornamental plant in Japan, a glucoside the chemical formula of which was identical with that of the adonidin described by Cervello. But as, according to Inoko, its physiological action, although agreeing with that of adonidin qualitatively, was very much weaker quantitatively, the authors named it "adonin." The adonidin isolated by Kromer from *Adonis æstivalis*, according to Kobert, has an action about 200 times weaker than that prepared from *Adonis vernalis*, so that the glucoside is now only prepared from the last named plant.

The adonidin supplied by the Merck laboratories, which is prepared from *Adonis vernalis*, is a light brown, amorphous, hygroscopic powder, which easily cakes and is readily soluble in water and alcohol. It is indicated in valvular disease with disturbed compensation, angina pectoris, myocarditis, fatty heart, dropsy, parenchymatous nephritis with diminished diuresis, nicotine poisoning, and as an anæsthetic in ophthalmology. It is contraindicated in high blood pressure, abnormally increased cardiac action, and in nervous heart trouble.

The following communications deserve special mention:

Desplats and Huchard report upon the excellent results obtained by them by the

administration of adonidin in loss of compensation and in cardiac weakness. This drug was even found to be of use in cases in which digitalis and convallaria had proved useless. Huchard prefers adonidin to the galenical preparations of adonis, such as extract of adonis and tincture of adonis, and especially points out its utility in low blood pressure consequent upon adynamic fever (typhoid). In his experience it not only raises the blood pressure, but in heart disease it diminishes and eliminates arrhythmia, palpitation, edema and dyspnea, and often considerably increases diuresis. Huchard recommends as a daily dose $\frac{1}{3}$ grain, for after daily doses of $\frac{1}{2}$ grain he observed vomiting and diarrhea. As a single dose he was accustomed to give $\frac{1}{12}$ grain. Desplats also observed repeated vomiting in a patient, who by mistake had received 2 grains a day. On the other hand, in his opinion, the preparation may be given more frequently in order to obtain a permanent result, as no cumulative action need be feared.

Oliveri made use of adonidin as a cardiac tonic and diuretic in cases of mitral and aortic insufficiency and was in every case able to alleviate the precordial pain, dyspnea and palpitation. On account of the energetic action of adonidin, the author advises that the single dose should not exceed 1 grain, as a higher dose might cause vomiting, gastric trouble and nervous disturbances. For this reason it is given in chloroform water in four daily doses of $\frac{1}{6}$ to $\frac{1}{2}$ grain. Chloroform water offers the additional advantage that when adonidin is dissolved in this medium it keeps better than in an aqueous solution. As adonidin is very hygroscopic and easily cakes, the best method for effecting its solution is to open the little glass tube containing the preparation and to drop it into the exact amount of water required for the solution. In this way the desired solution is obtained in the shortest time.

According to H. Stern, adonidin is in many respects superior to digitalin or digitalis. It is said to be of special value in cases in which digitalis may only be used with the greatest care, e. g., fatty degeneration of the cardiac muscle, pericarditis, simple and compensatory hypertrophy and certain atheromatous conditions. The same holds good for renal disease. In rapidity and duration of action adonidin, according to Stern, is equal to nitroglycerin and is superior in this respect to all other cardiac tonics. The diuretic effect of the drug is best seen in dropsy and in lowered arterial tension. On the whole the author considers

adonidin one of the most valuable cardiac tonics, which is always well borne when not given in too large doses. He made use of the following prescriptions:

Adonidin0.01 Gm. (grn. 1/6)

Sodii Benzoatis.....1.50 Gm. (grn. 24)

Ft. pulv. Mitte X.

Sig.: One powder to be taken in a glass of water every 4 hours.

(In chronic nephritis.)

Adonidin 0.05 Gm. (grn. 3/4)

Aq. Destill.....10.0 Gm. (f. 5 1/3)

Sig.: 1 to 2 Cc. (17 to 34 min.) to be injected subcutaneously.

(Angina pectoris, etc.)

Adonidin0.005 Gm. (grn. 1/2)

Ammon. Carbonatis..0.1 Gm. (grn. jss)

Camphoræ0.03 Gm. (grn. ss)

Ft. pulv. Mitte XX.

Sig.: One powder to be taken 3 times a day.

(In nicotine poisoning.)

The use of adonidin as a local anesthetic in ophthalmology was suggested by A. Schidlowski, who considered its action to be effective in the treatment of various affections of the eye, such as acute and chronic glaucoma, iritis, iridocyclitis and corneal affections, even though it is not equal to that of cocaine. The author suggests the use of a 1 per cent. aqueous solution, of which 3 drops suffice to alleviate the unbearable pain of glaucoma, or to produce the necessary amount of insensibility for operative procedures, such as extraction of cataract or tattooing. Two drops of a 2 per cent. solution produce complete anesthesia within 25 minutes, which lasts for 3 to 4 hours. The instillation causes a certain amount of irritation, which must be allowed to subside (about 1 hour) before commencing the operation.

With regard to the dosage by mouth, the following facts may be noted: the single dose ranges from 0.002 to 0.03 Gm. (1/32 to 1/2 grain); 0.1 Gm. (1 1/2 grains) may be considered the maximum daily dose. Blumenthal suggests 0.06 Gm. (1 grain) as the maximum single dose, while Kobert gives the maximum dose as 0.005 Gm. (1/12 grain) and pro die 0.03 Gm. (1/2 grn.).

Finally the work of J. M. Fückelmann may be referred to, in which he points out that the adonidin of commerce contains two glucosides which act as cardiac poisons, "adonidinic acid" and "neutral adonidin." The two substances have a similar action on the heart, but adonidinic acid also possesses a hemolytic action, which is absent in neutral adonidin.

Antiarin.—As early as 1684 C. Spielmann described an arrow poison used by the inhabitants of Celebes; later Kämpfer, Rumphius and others reported upon its origin

and the plant from which it was obtained; at the present time it is generally agreed that the arrow poison used by the inhabitants of the Malay Peninsula and of the Sunda Islands is obtained from the milk-juice of *Antiaris toxicaria* (Leschenault), of the natural order *Moraceæ*, the so-called Ipu tree. The most active ingredient of this arrow poison is the cardiac poison antiarin, but Wefers Bettink has obtained other toxic substances from it, i. e., strychnine, brucine and upaine. It is therefore probable that the natives use for the preparation of their arrow poison the ingredients of other plants besides the milk-juice of the ipu tree.

Kiliani carefully examined the milk-juice of antiaris trees, collected by the explorer Stevens in Malacca, and following the directions of de Vrij and Ludwig, prepared from it antiarin. Its glucosidal nature became apparent on treatment with alcoholic hydrochloric acid, when it was split up into antiarigenin and a sugar, antiarose. Antiarin dissolves in sulphuric acid containing iron oxide, yielding a yellow or yellowish-red solution. Kiliani has recently demonstrated that two antiarins are contained in the milk-juice of *Antiaris toxicaria*, *a*-antiarin and *b*-antiarin. The two substances are said to be equally toxic. *a*-antiarin forms tabular crystals melting at 220° to 225° C., *b*-antiarin forms needle-shaped or columnar crystals, melting at 206° to 207° C. For *a*-antiarin Kiliani suggests the formula $C_{27}H_{42}O_{10} + 4H_2O$, whereas in his opinion the formula $C_{22}H_{30}O_8$ for *b*-antiarin still requires confirmation. Seligmann has also worked with a mixture of the two antiarins, as is apparent from his description of the crystalline form of his antiarin.

The first pharmacological experiments with antiarin were carried out by Mulder, but its action on the heart was first studied in detail by Kölliker and Sharpey, who discovered that it possessed a paralyzing action on the heart and nervous system. Then followed the investigations of Alfermann, Bezold and Hirt, Braidwood, Buchheim and Eisenmenger, Cushny, Dybkowsky and Pelikan, Hedbom, Kobert, Müller, Nasse, Neufeld, Rosenthal, von Schroff, Seligmann, Stockman, Straub, Valentin, Krailsheimer and Trendelenburg, from which it is evident that antiarin, in experiments on animals, exhibits the characteristic action of digitalis glucosides. Several of the authors even found that it possessed a quantitatively stronger action. According to the most recent investigations (by Krailsheimer) digitoxin, g-strophanthin and antiarin are said to have an approximately equal

action. Therefore, in carrying out therapeutic experiments with antiarin, the doses used should be the same as those generally used of digitoxin.

Clinical observations relating to antiarin have not, as far as I know, been published. It may be mentioned that I do not prepare antiarin.

Apocynum Substances.—The presence of a cardiac poison in the root of *Apocynum cannabinum* (Apocynaceæ), which is indigenous to North America and is much used for the treatment of dropsy, was already assumed by Husemann, who considered this to be the active principle of the drug. This assumption was confirmed by te Water's investigations of this drug, in which the author succeeded in isolating two substances from apocynum root, the resinous apocynin and the glucosidal apocynin.

Apocynin, according to te Water, even in very small doses, caused the frog's heart to stop beating in systole. Apocynin is said to closely resemble digatalein in its properties and its solubility.

The apocynin prepared at my laboratories from *Apocynum* forms white crystals soluble in alcohol. Finnmøre has demonstrated that it is aceto-vanillon, melting at 115° C., which, according to Moore, has only a slight action on the blood pressure in animals.

It may be noted that von Oefele obtained from the shoots of *Apocynum venetum* an extract-like body possessing a pronounced digitalis action, to which he gave the name of apocynin. Furthermore, Ch. W. Moore obtained from the rhizome of *Apocynum androsaemifolium* a glucoside of the composition $C_{14}H_{18}O_8$, melting at 170° to 175° C., which is said to represent the active principle of the drug. The author named it apocynamarin, because it has an intensely bitter taste. Finnmøre pronounced cynotoxin, a dilacton of digitig acid (Kiliani), or of an isomeric acid of the latter, to be the active principle of the rhizome of *Apocynum cannabinum*. According to Moore, this is most probably identical with apocynamarin.

For therapeutic purposes only extractum apocyni cannabini liquidum deserves consideration. Its action, according to the pharmacological investigations of Dotschewski, is similar to that of strophanthin and affects the heart in the same way as the other members of the digitalin group. Woodhull, Duprey and Tyson emphasize the diuretic action of the drug, which is most evident in healthy kidneys. Provided the doses be not too large it causes no vomiting, a fact which is confirmed by other

authors, viz., Pawinski, Riebold and Dmitrenko. Millard asserts that it acts as a bitter tonic on the stomach and is for this reason to be preferred to digitalis. But as with all digitalis substances, vomiting may occur with apocynum medication in the case of sensitive patients. In such cases smaller doses must be given at shorter intervals, or the drug must be taken after food.

In recent valvular disease, Millard treated the loss of compensation successfully with a combination of apocynum and strychnine. In aortic stenosis, in the author's experience, apocynum frequently saves life, and even in mitral stenosis it gives better results than digitalis. The author considers the preparation of special value on account of its beneficial effect in insomnia.

Dmitrenko, in the treatment of disturbances of compensation due to myocarditis and valvular disease, gave 7 to 10 drops of fluid extract of apocynum 3 times a day; Robin, as an adjunct to theobromine medication, gave 30 drops 3 times a day.

Kraemer and Fehsenfeld have also expressed themselves well satisfied with the prompt action of the fluid extract. They recommend it specially in chronic cardiac insufficiency with severe disturbances of compensation, when digitalis has failed. The result is said to be surprisingly good in many instances. The pulse becomes fuller, stronger and slower, diuresis is greatly increased and the general condition rapidly improves. Fluid extract of apocynum is also of use if digitalis loses its effect or if it is considered advisable to discontinue the administration of the latter for a time. The tincture may be used in place of the fluid extract. Petteruti and Somma have found doses of 60 to 90 drops serviceable. For a medium dose 10 to 15 drops of the fluid extract may be given 3 times a day.

Cactus Grandiflorus.—About 20 years ago American physicians discovered in the flower stalks of *Cactus grandiflorus* (*Cereus grandiflorus* Mill.) an active cardiac tonic, which was soon widely used, because in the form of fluid extract or tincture it is non-toxic and has no cumulative action. Orlando Jones, Boinet and Boy-Teissier assert that *Cactus grandiflorus* strengthens the action of the heart and increases the circulation and is therefore also useful in asthenia.

Aulde considers cactus extract a good stimulant and regulator of the heart's action, which, on account of the absence of cumulative action, may be used in the various forms of functional disturbances of the heart. As I have already stated in my Annual Reports (1891 and 1893), the author

used it in combination with various other drugs, e. g., with nux vomica and pancreatin in cardiac disturbance occasioned by dyspepsia, with Fowler's solution in anasarca, edema of the lower limbs with or without valvular disease, with ergotin in endometritis, leucorrhœa, etc., if these were accompanied by palpitation, etc.

According to Engstad, extractum cacti grandiflori liquidum may be regarded as a specific in angina pectoris. He obtained the best results by giving it in doses of 15 drops 3 to 4 times a day. Tincture of cactus is also said to be useful. Its maximum dose, according to Watson Williams, is 2 Gm. (34 min.), given every four hours. Hills and Williams confirm the beneficial action of *Cactus grandiflorus*, especially in the milder cases of angina pectoris. But on the whole they do not consider that the drug can totally replace digitalis. They recommend its use in functional cardiac conditions, after sexual excess, and for the after-effects of over-indulgence in tobacco and alcohol, in Graves' disease and aortic insufficiency. But in mitral insufficiency and dilatation of the heart it is said to act less well than digitalis or strophanthus.

Zelenski recommended the fluid extract for delayed absorption of pleural exudates and for cardiac weakness. In his experience it is also indicated in badly compensated aortic valve lesions, as it is a safe drug in the treatment of edema, dyspnea and arrhythmia. It is said to act less well in badly compensated mitral valve lesions. According to Zelenski, in order to obtain a satisfactory action at least 30 drops should be given 3 times a day.

If the employment of *Cactus* preparations is occasionally followed by failure, as reported by Hatcher and Bailey, the explanation is certain to be found in the use of a deteriorated or substituted drug. According to Holmes, the inactive stems of *Opuntia decumana* have in fact been substituted for the true drug. Sharp also has reported on true and false *Cactus grandiflorus*. Curtin also considers failures in the use of *Cactus grandiflorus* to be due to the employment of substituted drugs, and therefore suggests a careful test of the drug. He considers *Cactus grandiflorus*, when correctly used, to be one of the most excellent cardiac tonics even though it cannot wholly replace digitalis in every case, and especially not in advanced cardiac weakness. It acts, however, as an excellent cardiac tonic in less severe weakness and in cardiac irritability, and is useful as an adjunct to other cardiac tonics. The author recommends it especially

in cardiac debility following infective diseases, in Graves' disease, in and after influenza, in cardiac asthma, and combined with nitroglycerin for older people suffering from cardiac debility, dyspnea and asthma. It is also useful as a tonic in increased excitability of the heart consequent upon aneurysms, when digitalis is not indicated. The harmless fluid extract or the tincture may be given in doses of 5 to 30 drops several times a day. (Compare Gregory, "Therapeutic Gazette, 1891, p. 426.)

On examining *Cactus grandiflorus* Teissier found an alkaloid which he named cactine, to which the therapeutic action of the drug is attributed. Farr confirmed the presence of small quantities of alkaloid in this plant, while Sharp and Hoseason detected neither an alkaloid nor a glucoside, but were able to confirm the diuretic action of *Cactus grandiflorus*. The preparation named "cactine" or "cactina" supplied by a foreign firm has, according to Hatcher's investigations, practically no action on the heart.

Carpaine.—In 1889 M. Greshoff found an alkaloid, which he named carpaine, in the leaves of *Carica Papaya*, of the natural order Caricaceæ, indigenous to South America and cultivated in India. It forms white crystals, melting at 119° to 120° C., soluble in alcohol, ether, chloroform, and amyl alcohol. Its hydrochloride, $C_{14}H_{25}NO_2 \cdot HCl$, is soluble in water. Carpaine and its derivatives have been examined chemically by J. L. van Rijn and by Litterscheid, pharmacologically by Greshoff and C. L. Rümke, therapeutically by von Oefele.

After Greshoff had shown carpaine to be relatively slightly toxic, the lethal dose for a hen weighing 500 Gm. being 0.2 Gm., von Oefele carried out several tests with it. According to his results, the alkaloid causes no local irritation when injected subcutaneously, and the internal administration of 0.025 Gm. (2/5 grain) pro die exhibits no advantages over the well known digitalis substances. On the other hand, the subcutaneous injection of 0.006 to 0.01 Gm. (1/10 to 1/6 grain), a dose which may be repeated daily or every second day, produces within a few minutes a beneficial action on the heart; in aortic stenosis and insufficiency the pulse rate is lowered, respiration is relieved and diuresis is considerably increased. Rümke admits that carpaine is a cardiac poison, but his investigations show that its action does not correspond with that of digitalis, for it has a paralyzing action only on the muscles and does not affect the nerves. It should there-

fore, like sparteine, be placed in the class of cardiostatics, and not, like digitalin, in that of the cardiac tonics.

Cerberid.—In 1864 de Vrij described a glucoside which he had obtained from the seeds of *Cerbera Odallam* Gärt. (Apocynaceæ.) This preparation, called by the author "cerberin," was examined together with other substances in a comprehensive work by Plugge; from the latter it was apparent that the cerberin of Vrij was neither identical with the thanginin prepared from *Cerbera Thanginia* Hook, nor with the thevetin prepared from *Thevetia Yccotli* D. C. (*Cerbera Thevetia* L.). Neither is the cerberin described by me in 1892 identical with Vrij's preparation. In order to prevent confusion, I have given the name of "cerberid" to the glucoside prepared by me from the seeds of *Thevetia Yccotli*.

Cerberid, $C_{25}H_{38}O_{12}$, is an amorphous, yellowish powder, soluble in water. Its chemical properties are not similar to those of thevetosin, isolated by Herrera from *Thevetia Yccotli*. On hydrolysis it splits up into glucose and cerberiresin.

According to the pharmacological tests carried out by Zotos with cerberid, this glucoside possesses the cardiac action characteristic of substances belonging to the digitalin group. But, in contradistinction to digitoxin and thevetin, its subcutaneous injection rarely causes local irritation, and when instilled into the conjunctiva it causes no inflammation. Wagner, on the other hand, observed unpleasant symptoms of irritation of the subcutaneous tissue after the hypodermic injection of cerberid in doses of 0.0005 to 0.001 Gm. (1/125 to 1/64 grain). Internally the author has given it in daily doses of 1/64 to 1/4 grain. The conclusions he draws from his clinical experiments are as follows: "Cerberid is a cardiac poison, which in man has an injurious effect on the intestinal tract and the stomach. The general weakness and feeling of exhaustion which follow the administration of the drug may be attributed to its action on the striped muscles. Cerberid has no action on the central nervous system. It displays only in a slight degree the regulating action of digitalis on the heart and this did not appear in all the patients on whom the drug was tested. In some it called forth a retardation, in others an acceleration of the cardiac rhythm, without exhibiting much effect upon respiration. The slight rise in blood pressure and the negligible increase in the amount of urine do not make up for its injurious action on the digestive organs." Although cerberid possesses so little therapeutic effect, it is

strange that the author should state that he observed a strong cumulative action.

Convallamarin.—The use of *Convallaria majalis* as a diuretic in dropsy and as a cardiac tonic is quite old, but the interest in its therapeutic use was freshly awakened at the end of the last century. Thus Sée and Bochefontaine carried out pharmacological experiments with aqueous and alcoholic extracts of this plant and confirmed its cardiac action. In frogs and dogs the suitable employment of these extracts in large doses caused the heart to stop beating in systole; while small, non-lethal doses slowed the pulse, and brought about slower and deeper respiration and a rise in the blood pressure. The two authors confirmed its fairly considerable influence on diuresis. On the whole, therefore, the action of convallaria agrees with that of digitalis.

Walz was the first to occupy himself with the isolation of the active principles; he obtained two substances, convallarin and convallamarin, and described them in detail. Convallamarin is the only one of interest to us, for according to Marmé it possesses the cardiac action.

Convallamarin, a glucoside with the chemical formula $C_{23}H_{44}O_{12}$, is a yellowish amorphous powder, soluble in water and in dilute alcohol. On hydrolysis it forms convallamaretin and glucose.

Marmé, who examined convallamarin Merck pharmacologically, attributes to it the cardiac action briefly described above, as well as a marked diuretic action. The results reported by Kobert, Howard, Singer, Steller, Gottlieb and Magnus, Loewenthal and others agree with these findings. Steller found that convallamarin exhibits an action on the nervous system injurious to the reflex activity by diminishing the sensory response of the spinal cord; the injurious action also involves the motor nerves. It is said to have no action on the peripheral nerves.

Maragliano and Lourie observed in their clinical experiments that after the administration of 4 to 15 grains of convallamarin the arterial pressure was often considerably raised, the pulse rate and respiratory frequency were usually lowered, but were sometimes not influenced at all. If the preparation is given for a prolonged period, the experience of the authors is that a considerable increase in diuresis ensues without any unpleasant consequences. Diarrhea, however, occasionally occurs, and this is also admitted by other authors. Convallamarin is most useful in valvular lesions with insufficient cardiac action. Maragliano has used it without benefit in pleuritic effusion.

Leubuscher used convallamarin in healthy and in diseased persons, but his results were negative, although the preparation used by him in experiments on animals showed a powerful cardiac action. Even with medium and with lethal doses he was unable to confirm its action of increasing the blood pressure. This contradictory result might be attributed to the source of the convallamarin employed. This is not to be wondered at when one considers that similar negative results have occasionally been obtained with all preparations belonging to the digitalis group, and further that the locality from which the plant has been collected and the drying of the drug, as well as variations in the preparation of the commercial product may easily lead to the production of weak or inactive preparations. The fact that the use of a good preparation leads to corresponding results has been recently proved by E. P. Noguera, who prescribed convallamarin with the most satisfactory results in several cases of mitral insufficiency with loss of compensation and in cardiac dilatation in typhoid fever, as well as in cardiac hypertrophy with feeling of oppression and dyspnea. It should be noted that the drug must be discontinued if after 4 days no definite action on the pulse is observed. For adults Noguera prescribes $\frac{3}{4}$ to 3 grains a day, for children $\frac{1}{3}$ to $\frac{2}{3}$ grain by mouth, in mixtures or pills. Adults may also be given $\frac{1}{2}$ grain subcutaneously twice a day. The author considers the drug to be contraindicated in advanced degeneration of the heart muscle, and in the presence of renal or hepatic disease.

Further experiments with convallamarin would seem to promise success, especially in cardiac lesions with edema. Internally $\frac{3}{4}$ to 1 grain may be given every 2 hours; 15 grains a day is usually considered the maximum dose. Subcutaneously several applications of $\frac{1}{12}$ to $\frac{1}{3}$ grain might be given daily.

Coronilline.—*Coronilla varia* and *Coronilla scorpioides* (Papilionaceæ) had long been in use as popular remedies for dropsy, pulmonary tuberculosis, febrile symptoms, and the sting of scorpions, when Cardot in 1886 drew attention to these drugs as cardiac tonics. According to Poulet, *Coronilla varia*, used in the form of 20 per cent. tincture, or dried and used as a powder, has proved of use as a rapidly acting means of alleviating paroxysmal tachycardia and for the pains of aortic stenosis and mitral insufficiency. It is also of use in asystole as a continuation of, and a substitute for, digitalis medication. The tincture is given in single doses of 10 to 20 drops and in

daily doses of 30 to 60 drops, the fluid extract 4 to 5 times a day in doses of 5 to 15 drops, or the powder in daily doses of 15 to 30 grains.

Poulet used the leaves of *Coronilla varia*, which in his experience taste less bitter than those of *Coronilla scorpioides*, and yet have the same action. But the leaves of *coronilla*, according to Kobert, excite vomiting and diarrhea, so that it is better for therapeutic purposes to use the active principle of the plant, namely coronilline, which is prepared from the seeds of *Coronilla scorpioides*. It is a yellow powder, soluble in water and alcohol.

Coronilline was first tested pharmacologically by Schlagdenhauffen and Reeb, who found that the action of the glucoside was similar to that of digitalis, and when given to frogs in doses of 0.001 gramme it caused the heart to stop beating in systole. The authors place the toxic dose for a dog weighing 12 kilogrammes at 0.01 gramme, given subcutaneously, and 0.001 gramme, when given by intravenous injection. Prevost found that coronilline was practically identical in action with digitoxin, but Kakowski found that it differed from digitoxin in that it caused dilatation of the coronary arteries in warm-blooded animals, whereas digitoxin causes constriction of these arteries.

Spillmann and Haushalter sum up the results of their therapeutic investigations as follows:

"Coronilline may be looked upon as a cardiac tonic, which has a beneficial effect upon certain symptoms brought about by the insufficient energy of the cardiac muscle. The beneficial effect becomes manifest soon after the drug has been taken, but disappears almost entirely if the administration of the drug be interrupted. * * * Its action gives rise to a stronger pulse, increased diuresis and decrease in edema and dyspnea. Coronilline, like digitalis, is inactive in advanced myocardial degeneration."

Kobert regards the daily doses of 3 to 9 grains, mentioned in the literature, as toxic.

Spillmann and Hauser recommended the following prescriptions:

Coronillin 2.5 Gm. (grn. xl) *
Pulv. Althææ 0.5 Gm. (grn. viijss)
Mucilag. Cydoniæ q. s. ut f. pil. No. xxv.

Sig: One pill to be taken 6 times daily.

Coronillin 2.0 Gm. (grn. xxx)
Tinct. Coronill. Var. 20.0 Gm. (f. 3¾)
Glycerini 5.0 Gm. (℥lx)
Syrup. Coffeæ 5.0 Gm. (℥lx)

Sig.: 10 drops to be taken 3 to 6 times a day.

Erythrophlœine—*Erythrophlœum Guineense* Don. (*Erythrophlœum judiciale* Proct.), natural order Cæsalpiniaceæ, is one of the group of poisonous plants from which the natives of Central Africa prepare the poison for their arrows. Lewin was the first to point out that the arrow poison named by Christy Haya-poison, and derived from Harrar, contained pieces of the bark of *erythrophlœum*. The alkaloid *erythrophlœine*, prepared from the bark of *Erythrophlœum Guineense*, the so-called "Sassy bark," by Gallois and Hardy and by me some 30 years ago, showed a digitalis-like action and also excited convulsions. Later, however, I succeeded in perfecting the preparation of *erythrophlœine*, so that the preparation I now supply, as Harnack has shown, causes no clonic convulsions (picrotoxin action), but possesses a pure digitalis action, causing a great rise in blood pressure. Glawatz came to the same conclusion. Lewin found that *erythrophlœine* (in 0.05 to 0.25 per cent. solution) possessed a considerable anesthetic action and he considered that it might replace cocaine in ophthalmic work. But other authors, for instance, Onodi and Liebreich, found that the alkaloid gave rise to severe local irritation of the cornea; Harnack confirmed this observation, using pure *erythrophlœine*.

According to Karewski, *erythrophlœine* has no action when applied externally or injected into inflamed tissue. But the author found it efficacious as an anesthetic when applied to the nasal mucous membrane in a 5 per cent. aqueous solution for the extraction of polypi. He also claims to have carried out painlessly dental extractions, scraping of tuberculous granulations, and similar operations after an injection of 0.005 Gm. (1/12 grain). Guttman was also well satisfied with the action of *erythrophlœine* injections (of 1/125 to 1/64 grain in 0.1 to 0.05 per cent. solution) in neuralgia, tuberculous dysphagia, syphilitic headaches, and spermatic cord neuroses following epididymitis. By employing these doses he observed freedom from pain, appearing after half an hour and lasting as long as eight hours.

Ramon Paus recently reported on the employment of *erythrophlœine* as a dental anesthetic. He recommends the following combination:

Erythrophlœin. Sulph. .10 Gm. (grn. xv)
Menthol. 1.0 Gm. (grn. xv)
Acidi Carbolici. 4.0 Gm. (grn. lx)

In dental caries of the first and second degree a little cotton wool is moistened with it and applied to the sensitive spot, which

is then covered over with cement and sandarac varnish. On the following day it can be opened up and drilled without causing pain. Before removing the pulp another application of the mixture is necessary. During the first few hours after its application a negligible amount of pain is felt. It is said to have the great advantage over arsenious acid of never causing pulpitis, periodontitis, alveolar necrosis or other unpleasant consequences. The tongue, however, should be protected from contact with the medicament, more especially if it is liable to injury by sharp teeth.

The *erythrophlœine* sulphas prepared by me forms an amorphous, yellowish-white powder, soluble in water and alcohol. As a cardiac tonic the preparation deserves the special notice of clinicians, for on account of its solubility in water it can be used internally, subcutaneously, intravenously, and rectally. As it may be assumed that *erythrophlœine* has no cumulative action (Herrmann), those experiments would seem likely to succeed in which the alkaloid is used as a substitute for digitalis glucosides or digitalis infusion, on the appearance of cumulative symptoms when using the latter.

Clinical experiments have not as yet been carried out with the *erythrophlœine* which has the pure action of digitalis; and the experiments carried out by Herrmann with the *erythrophlœine* which was formerly prepared, and which also has an action similar to that of picrotoxin, cannot be applied to the present preparation. In diseases of the heart an internal dose of 1/32 to 1/16 grain may be used.

The anesthetic action of *erythrophlœine* has been discussed by Koller, Schöler, P. Guttman, G. Gutmann, Hirschfeld, Karewski, Königstein, Reuss, Tweedy, Brandt, Linn, Löwenhardt and Kaposi.

Koller and Schöler considered that the irritant symptoms of *erythrophlœine*, apparent in the occurrence of pain and slight cloudiness of the cornea, were not a consequence of caustic action, but were due, as in the case of cocaine, to disturbance of nutrition consequent upon paralysis of the nerves. Schöler considers the corneal cloudiness, which is observed on using more concentrated solutions and according to various authors may last from 12 hours to 14 days, of more serious import than the pain observed by Königstein, Tweedy and Reuss after the instillation of active solutions of *erythrophlœine*. According to Gutmann and Hirschfeld, the use of *erythrophlœine* does not cause loss of sensibility, but produces analgesia sufficient, for example, for the

removal of foreign bodies from the eye. In order to avoid symptoms of irritation consequent on instillations into the eye and after subcutaneous injections, Guttman and Karewski recommend the use of very dilute solutions. Kaposi also confirmed the appearance, after subcutaneous injections of erythrophleine, of local symptoms of irritation, such as redness, swelling and pain, and when large doses are given, of other toxic symptoms, such as vertigo, dilated pupils, slowing of the pulse and of the cardiac action, and vomiting. His communication is of special interest in that it proves the use of the alkaloid to be free from great danger, for the symptoms of general intoxication described above only appeared on the injection of 0.02 Gm. ($\frac{1}{3}$ grain). Lipp even injected 0.03 Gm. ($\frac{1}{2}$ grain), but in several cases he observed slowing of the pulse, dyspnea and palpitation after 0.01 Gm. ($\frac{1}{6}$ grain). These doses, however, offer little practical assistance in the therapy of heart disease, for it may be assumed that the authors mentioned above did not carry out their anesthetizing experiments on patients known to be suffering from heart disease. In such patients erythrophleine would probably act differently than in persons having a healthy heart. In the treatment of patients suffering from heart disease, caution must be observed as regards dosage, which should begin with 0.001 to 0.002 Gm. ($\frac{1}{64}$ to $\frac{1}{32}$ grain), until the correct dosage has been definitely settled.

A body nearly related to erythrophleine, at any rate chemically, is the alkaloid muawine, first prepared by me in 1890. Muawine hydrobromide is a yellowish, amorphous powder, soluble in water and alcohol. It is obtained from the bark of the so-called muawi tree, a native of Mozambique, and probably nearly related to *Erythrophloeum* Guineense. Sassy bark, as is generally assumed in the literature, is collected not only from *Erythrophloeum* Guineense, but also from related species, such as *Erythrophloeum* Laboucherii and *Erythrophloeum* Coumango. But the origin of muawi bark has not been definitely settled. Muawine is certainly not identical with erythrophleine, at least Kobert came to this conclusion after carrying out pharmacological experiments on cold-blooded and warm-blooded animals. It cannot be identical with the pure erythrophleine prepared by me, because besides having an action similar to that of digitalis, it can give rise to clonic and tonic convulsions. Jacobsohn also found that muawine is more toxic than erythrophleine.

Helleborein.—Helleborein is a glucoside contained in the roots of *Helleborus niger* and *Helleborus viridis*, which was discovered by Marmé in 1864. Husemann and Marmé, and also Thaeter, have paid special attention to its preparation. The first named authors gave it the chemical formula $C_{26}H_{44}O_{15}$, the last-named the formula $C_{37}H_{56}O_{18}$. When decomposed by means of hydrochloric acid, helleborein, according to Thaeter, splits up into helleboretin, glucose and acetic acid. The helleborein supplied by me is a yellowish powder, soluble in water and alcohol, insoluble in ether, which has a sweetish taste, and in the form of powder excites sneezing.

Both physiologically and pharmacologically helleborein is nearly related to the digitalis glucosides. It is a definite cardiac poison, which also has the cumulative action of digitalis. In small, frequently repeated doses it has a retarding influence on the action of the heart, in large doses an accelerating influence, and it always raises the blood pressure. The action of helleborein on respiration, diuresis and the nervous system is also similar to that of digitalis.

For the further elucidation of the action of helleborein the result of a recent pharmacological investigation of the preparation by Wybauw may be quoted, who gives the following summary of his results:

I. The action of helleborein administered internally consists in:

- (a) an increase in the pulse volume, with or without decrease in the pulse rate, and increase in the blood pressure and the work of the heart,
- (b) following upon this a rapid decrease in the work, the blood pressure, the pulse volume and even of the pulse rate (this phase corresponds to peristalsis),
- (c) the heart stops in systole.

These signs depend upon the following factors:

- (a) Immediately upon the entrance of the poison into the ventricle, it causes irritation of the nervous mechanism which regulates the movements of the heart, an increased systole and a consequent longer diastole,
- (b) a molecular alteration of the heart muscle, which has been minutely described by Schmiedeberg,
- (c) finally irritation of the restraining apparatus, which brings about the cessation of the action of the heart; possibly this irritation depends upon the altered equilibrium of the muscle.

II. The action of helleborein applied externally depends upon:

- (a) Irritation of the inhibitory centers,
- (b) a very slow change in the musculature, which gradually restores to the ventricle the appearance of systole.

Thus helleborein in every case acts upon the musculature, the elasticity of which is increased, and upon all the nerve elements of the heart, either stimulating or inhibiting their action.

As a substitute for digitalis helleborein may be given internally in doses of 0.01 to 0.02 Gm. ($\frac{1}{6}$ to $\frac{1}{3}$ grain) several times a day.* Van der Heide considers it advisable to use the preparation at relatively long intervals (of 24 hours) and in small doses, rather than at short intervals or in large doses. But in his opinion the appearance of cumulative symptoms need not give rise to alarm on account of threatened poisoning, even if digitalis or helleborein has been administered for some time; for, according to his experiments, the symptoms disappeared even if the administration of helleborein were continued. But, if during the first few days of the administration of helleborein no definite alteration in the cardiac action is observed, care is necessary, for the continuation of the drug in such a case might jeopardize the patient's life.

After the subcutaneous injection of helleborein only very slight local symptoms of irritation have been observed, especially if very dilute aqueous solutions of the drug were used. On account of the lack of clinical evidence, however, no exact dosage can be given.

It may be noted that helleborein has been suggested as a local anesthetic, for, when instilled into the conjunctival sac of frogs, it is said to cause complete anesthesia of the cornea in about 5 minutes. Venturini and Gasparini have used the glucoside in the place of cocaine in ophthalmic practice, and state that it has occasionally produced better results than cocaine. For operative procedures it is said to be of great value. 0.0015 to 0.002 Gm. ($\frac{1}{40}$ to $\frac{1}{32}$ grain) is said to anesthetize the cornea and the conjunctiva of animals for 30 minutes, without causing irritation.

(To be continued)

RATIONAL TREATMENT OF FURUNCULOSIS

J. L. Kelly, of Melrose, La., writes that a furuncle may be aborted by boring deeply into the middle of it with a pointed match stick that has been dipped in liquid phenol. A white eschar is produced but there is no pain, for it is immediately relieved by the anesthetic action of the phenol. If the furuncle is seen late, the central vesicle is lifted off with a short scalpel and the hair follicle and sebaceous gland exposed. It is then dressed with sterile gauze wrung out with normal saline with one per cent. sodium citrate. A flow of lymph through the walls of the furuncle is set up by the osmotic action of the sodium chloride, while a fluidity of the serum is maintained by the sodium citrate. This treatment is continued two or three days. Pustulation is prevented by a zinc oxide ointment applied around the base. Internally the author administers 15 grains of sodium citrate in a glass of water after each meal for its alkaline action on the blood and its diuretic effect on the kidneys. The patient is also given iron, quinine and strychnine as a general tonic. The wet dressing is continued every four hours until the slough is loose. It is then removed and the cavity cleaned with hydrogen peroxide and a plain sterile dressing applied. A dry antiseptic powder may also be used.—New Orleans Med. and Surg. Jour., Dec., 1912.

ACTION OF HYDROGEN PEROXIDE

A chemically pure hydrogen peroxide, such as perhydrol is an invaluable agent in surgery since it has an elective action upon decomposition products without in any way interfering with living structures. Another great advantage lies in the fact that the resulting water and oxygen are absolutely indifferent to the tissues. Part of the action of perhydrol is mechanical, that is, the oxygen in its nascent stage will tend to free the tissues from bacteria and necrotic material much better than any process inherent to the body is able to do. Its chemical action is of no less importance, thus, poisonous products of metabolism will be oxidized to the final stage so that much less irritant substances will result. A. Nagy (Alleg. Med. Central-Zeit., 1912, No. 35), points out that one of the chief virtues of hydrogen peroxide is the complete absence of irritation, hence it is of the utmost importance always to employ a preparation free from acid.—Berl. Tierarzt. Woch., 1912, No. 3.

*Maximum doses: Single dose 0.03 gramme ($\frac{1}{2}$ grain), daily dose 0.12 gramme (2 grains). Compare Pharmazeutische Zentralhalle 1889, p. 397, and Beckurts Jahresbericht 1886, Vol. 21, p. 418.

Progress in Materia Medica and Therapeutics

TREATMENT OF CHORDITIS NODOSA

C. G. Stivers, of Los Angeles, writes that in cases of chorditis nodosa, or singer's nodes, he prescribes complete rest with the use of whispered-word method and the inhalation of the following mixture:

Tinct. Benzoini Comp.....	3j
Olei Pini	grn. xv
Mentholi	5ss
Camphoræ	grn. xv

M. Sig.: Add teaspoonful to one pint of boiling water and inhale t. i. d.

The author urges that the utmost gentleness be used both in examination and treatment. In applying remedies always use a tightly wound cotton applicator, the excess of liquid wrung out so that by no mischance could any escape into the larynx. In treating the nose, examine the size of the meatus inferior, and to treat the pharynx through the nose use that size of cotton wound applicator that will go in and out without unduly irritating the turbinates and septum.—Cal. State Jour. Med., Dec., 1912.

TREATMENT OF SYPHILIS

H. J. Nichols and W. H. Hough, of Washington, D. C., record the 'successful inoculation of the rabbit with *Spirochaeta pallida* from the cerebrospinal fluid. They report in full a typical case of "neurorecidiv" following the use of salvarsan after an apparent complete recovery from its use, a true syphilitic relapse. Up to the present time, they say, the presence of the spirochete in the nervous system has never been demonstrated. They have now furnished this demonstration and believe that the proof of the syphilitic nature of these nervous relapses is now complete. Why they should occur more frequently after treatment with salvarsan than with mercury is still a question, but they believe the best explanation can be given according to Ehrlich's idea. In some cases the nervous system is affected in the secondary stage, though perhaps without symptoms. The salvarsan treatment destroys the great bulk of the spirochetes at once, but the general resistance of the body is not stimulated against them as it is with their more gradual destruction. There remain, however, small foci of spirochetes, especially in areas less accessible to the circulation, such as are found in the nervous system. After a

time the germs begin to multiply again and, not meeting with the resistance such as is afforded by the continuous use of mercury or the stimulated resistance of the body, they grow with increased vigor and presently produce symptoms where they are located—in the nervous system. The clinical lesson is that in the early secondary stage the treatment must be vigorous and prolonged. In attempting a radical cure in this stage we must use a minimum of three or four intravenous injections of salvarsan combined with an intensive treatment of mercury covering at least two months. The results in the case here reported show that the rabbit is suitable for inoculation experiments when the spirochetes are few. They have been experimenting with rabbit inoculations of the spinal fluid and cortex of paretics, but thus far without positive results. Further work is necessary in this line.—Jour. A. M. A., Jan. 11, 1913.

INJECTION OF THE SUPERIOR LARYNGEAL NERVE IN LARYNGEAL TUBERCULOSIS

Henry Horn, of San Francisco, highly recommends the Hoffman method of injecting the superior laryngeal nerve so as to produce a permanent anesthesia as a palliative measure in cases of terminal laryngeal tuberculosis. The emaciation which is usually present makes the procedure generally an easy one. The point of entrance of the nerve through the thyrohyoid membrane can be palpated with great exactness. "The exact technic of making the injection is as follows: The skin is first prepared by painting the region to be injected with iodine. The left side of the larynx is grasped with the first and second fingers of the right hand, and with the thumb of the same hand the painful point is located. As soon as this spot is found the thumb-nail is pressed in to mark the spot and the needle is introduced at that point. The needle is introduced perpendicularly for 1.5 cm.; then the point is moved in all directions until a sharp pain, radiating to the ear, is felt. From 3 to 5 Cc. of a warm solution of 85 per cent. alcohol are then injected until the pain in the ear disappears. The point of entrance of the nerve will be found just at the upper edge of the thyroid cartilage, about one-third of the distance from its outer edge." In no case has he had any untoward effects and claims that the pro-

cedure is entirely without danger. There is immediate relief from pain as aspiration of food is seldom observed. The injection can be repeated without danger as often as necessary and the relief lasts from a very few hours to forty days. The mental effect on the patient is a very important secondary effect. He becomes more cheerful and tries to take food. In three cases the results were negative and if there is an involvement of the epiglottis, especially on the external surface, it was found that the relief failed or was only partial. He finds very few cases of this procedure in the literature.—*Jour. A. M. A.*, Sept. 7, 1912.

CHRONIC ULCERS OF THE LEG

In the treatment of chronic ulcers of the leg, B. N. Wade, of Portland, Ore., writes that the etiological factor or factors should be sought and corrected, for instance, uncleanliness, varicose veins, syphilis, or an occupation in which the patient is required to stand long hours should be changed.

Personal hygiene plays an important rôle in the treatment of this condition. The patient should be clean of body, as often filth is the very cause of the ulcer. The bowels should be kept open, and, if debilitated, the patient should receive a tonic, such as the official iron, quinine and strychnine. Some authorities give potassium iodide in this condition, whether the ulcer be of syphilitic origin or not.

In all cases, if possible, it is best to place the patient in bed and keep the affected leg *elevated*.

The nonoperative treatment consists in the application of various antiseptic powders and lotions, such as thymol iodide or two per cent. boric acid solution. Balsam of Peru is valuable, not only for its antiseptic action, but also for its stimulating action on granulation tissue. Tincture of iodine applied once or twice a week also acts in this manner. Scarlet red ointment is also valuable for its stimulating effect on the granulation tissue, and sometimes causes a rapid healing of the ulcer.

An adhesive strap gives good results in some cases, or an elastic bandage or a silk bandage applied from below upward are of great use in cases where the patient is unable to stay in bed, especially in cases of varicose ulcers. Unna's casts are used with success in many cases. Bier's hyperemia sometimes hastens healing by increasing the local arterial blood supply. This is not applicable to all forms of leg ulcer, however, as in some cases of varicose ulcer, profuse hemorrhage results from the local hyper-

emia bursting the weakened veins in the ulcer.

Treatment of the complications of chronic ulcer is very important, as this alone will sometimes effect a cure. An almost invariable accompanying lesion is a chronic, squamous eczema which should be treated with some nonirritating lotion or ointment, as zinc oxide ointment. Inflammation around the ulcer (cellulitis) is best treated by elevation of the limb and hot boric acid applications.

Operative treatment alone effects a cure in some cases, as the ulcer will no more than become healed by some form of medical treatment than some slight trauma will immediately start the formation of another ulcer. If varicose veins are the cause, they should be removed, and in this operation it is always advisable to remove a portion of the internal saphenous vein about the middle third of the thigh (Trendelenburg's operation), an elliptical incision made around the ulcer about one inch from its border, and carried down through the aponeurosis is an excellent procedure and often a speedy cure follows. This was first advocated by Sir John Gay, of London. Bleeding from the wound is easily controlled by pressure and the skin sutures. Curetting of the sluggish margin of the ulcer and also of sluggish granulation tissue, followed by Thiersch grafts are followed by excellent results, especially in large ulcers. Covering the granulating surface with a neighboring skin flap does not give uniform good results as do the skin grafts.—*N. Y. Med. Jour.*, Feb. 1, 1913.

TREATMENT OF RENAL AND URETERAL CALCULI

F. S. Watson, of Boston, in a report of 110 cases of calculi recommends the following plan of treatment:

For renal colic the combined use of ether inhalations and moderate doses of morphia. Heat to the affected side. An abundant supply of water to be drunk. Liquid or milk diet.

To aid in expulsion of calculus from the kidney the treatment far the most successful in the writer's experience is: Spts. turpentine in 10 minim doses in gelatin capsule t. i. d. Diet of milk, each tumbler diluted one-quarter part with Vals' water, milk to be slightly warmed and drunk slowly. Fish and dry toast may be taken once daily. Patient is to rest recumbent during the regimen and to take occasional hot sitz baths. Treatment to last six days consecutively, then after a two days' interval it is repeated once or twice, if necessary. After one month or six weeks of this treat-

ment at most, if the stone has not passed, it should be removed by surgical operation.

In every case in which the patients were freed from their calculi by medical treatment, cure was absolute and in twenty of them the patient's subsequent history was followed from three to twenty years.

In but a very small number of these—six—was there any recurrence of the trouble. These patients got rid of their recurring-calculi under the same treatment as was employed in the first instance.

In seven of the cases treated medically there was failure to cause the calculus to pass. These patients were operated upon successfully later.

In 87 per cent. of the writer's cases thus treated, in which the calculus was small enough to pass through the ureter, it was spontaneously expelled, while the patients were under medical treatment.—*Boston Med. and Surg. Jour.*, Jan. 9, 1913.

PROPHYLAXIS OF POLIOMYELITIS

M. Neustaedter, of New York, holds that the only avenue of infection in poliomyelitis is in the nasopharynx from whence it is carried by the lymphatics. He thinks that the virus probably lurks in the dust and the children between the ages of 5 and 8 being most likely to inhale the dust from floors explains the greater prevalence of the disease between those ages. As a child grows taller he inhales less dust and the tonsils, which have been irritated, generally atrophy. He has experimented with sweepings of rooms in which cases of poliomyelitis had occurred, macerating them in sterile water for a number of hours, filtering through paper, and then through a Berkefeld and French porcelain filter respectively. These filtrates were then injected intracerebrally, intraspinaly, and subcutaneously into monkeys. Two of the monkeys had abortive attacks and one a very severe one with all the clinical features and pathologic lesions of poliomyelitis. An emulsion of the brain and cord of the infected monkey was injected into two other monkeys, both of whom showed the clinical features and pathologic lesions. Control experiments with other monkeys in which sterile water was injected into one, normal salt solution in another, in a third one with extracts from dust where no case of poliomyelitis had occurred, and one injected with the brain and spinal cord of a normal monkey, and all remained well. Once in the atmosphere the virus may be disseminated in various ways, by direct contact with clothing, by the wind and by water. The fact that so many persons escape is explained by Neustaedter on

a theory that a neuropathic constitution, vulnerable to the virus, must pre-exist. He has carefully examined the histories of thirty-one cases and found this defect generally existent. As prophylactic measures, washing down and oiling the streets, antiseptic scrubbing of rooms, spraying the nasopharynx with hydrogen peroxide in persons exposed, a strict quarantine for at least two months, prohibition of bathing in stagnant water in a neighborhood where a case occurs, as well as of playing around sand heaps, and thorough disinfection of domestic animals are recommended.—*Jour. A. M. A.*, Sept. 7, 1912.

TREATMENT OF LACRIMATION WITH LOCAL INJECTIONS OF FIBROLYSIN

Chronic lacrimation is an extremely disagreeable condition and is usually sooner or later followed by a conjunctivitis of moderate degree which cannot be influenced by local applications of any kind. If the lacrimal ducts are sounded a stricture will generally be detected as the cause of the trouble. Mechanical treatment is very tedious so that P. Cohn had to resort in several cases to the instillation of fibrolysin in the conjunctiva. There was considerable burning and the results were not very satisfactory. He now injects a mixture of fibrolysin with 2 per cent. cocaine solution with a fine canula into the strictured duct. The results were very good; thus of 20 eyes treated in this way, a cure was obtained in thirteen and considerable improvement in seven. The method is not dangerous or painful. The fibrolysin may also be used by subcutaneous injection.—*Woch. f. Therap. u. Hyg. des Auges*, xv, No. 34.

TREATMENT OF PSORIASIS

Arsenic, thyroid extract and salicin, are the three drugs which, according to H. Davis, are of benefit in psoriasis. Arsenic is the most frequently used and may be given in the form of Fowler's solution, of which three to six drops are given three times a day after meals. It may also be prescribed with an alkaline bitter as follows:

Liq. Potassii Arsenitis.....℥ ij-vj
Sodii Bicarbonatisgrn. x
Inf. Gentiane Co.....ad. f. 3j

The dose of arsenic is gradually increased by one drop every third day up to 20 drops. The author also states that arsenic may be given in the form of Kaposi's Asiatic pill.

Arsenii Trioxidi1/20-1/10
Piper Nigrigrn. 34
Acacieq. s.

Kaposi recommended a course beginning with three pills a day, gradually increased to eight or ten. The drug is then pushed until four to six hundred pills have been taken. Davis, however, doubts the advisability of pushing the drug to this point as if arsenic is of any value at all small doses are usually sufficient.

Sometimes good results are obtained from the use of thyroid extract, which, however, should be given cautiously. One grain, twice daily, is sufficient as an initial dose. Salicin is useful in the initial stages of psoriasis in limiting the hyperemia.

The external treatment of psoriasis is more important than the internal. It is frequently effective unaided. The first essential of the treatment is the removal of all the scales, which should be done daily with the liberal use of soap and water, and warm baths containing sodium carbonate, two drams to each gallon of water. If the scales are hard and dense, they may be removed with the use of olive oil containing five grains of salicylic acid to every ounce. After the scales have been removed, one of the derivatives of tar should be applied in the form either of a lotion or of an ointment. A useful preparation is liquor picis carbonis, of the British Pharmacopœia. This contains prepared coal tar (picis carbonis), 1 part, in tincture of quillaria, 5 parts. It may be used in a solution in the strength of a dram to a pint. Such a lotion is useful in widespread eruptions. The following ointment is also useful:

Liquor Picis Carbonis (B. P.)...grn. viij
Hydrarg. Ammongrn. x
Petrolatiad 3j

Another tar preparation is anthrasol, which may be incorporated in an ointment as follows:

Anthrasol3j
Petrolatiad 3j

Oil of cade may be used in the strength of one dram to one ounce of petrolatum. Salicylic acid is useful for its power of reducing hyperkeratosis. The following is a good formula:

Acidi Salicylicigrn. xv
Ichthyolgrn. xxx
Petrolatiad 3j

The most powerful local remedy is chrysarobin, which should be used with caution. It should not be used near the eyes, for it may cause a severe conjunctivitis, nor on the scalp, for it stains the hair. It is best used with the patient in bed, or at all events, kept under constant observation. In the beginning it should be employed tentatively on one limb only. Chrysarobin may be combined with tar, as in Hutchinson's formula:

Chrysarobinigrn. xxx
Hydrarg. Ammoniatgrn. x
Liq. Carbonis Detergens.....℥xxx
Petrolatiad 3j

This should be rubbed in every morning vigorously and the part should be covered with a bandage. If well borne without excessive irritation, its use should be gradually extended over the whole of the affected area.

In the case of psoriasis of the scalp, the latter should be shampooed frequently with a spirit soap. Chrysarobin cannot be used on account of its staining properties. Tarry compounds should be applied, preferably in the form of a lotion, such as the following:

Anthrasol3iv
Tinct. Quillajæ3ij
Spir. Viniad 3iv

This may be applied by means of a stiff brush, for example, an ordinary tooth brush. —Med. Record, Jan. 18, 1913.

THE ABSORPTION OF DIGITOXIN FROM DIGITALIS PREPARATIONS

R. Gottlieb and S. Ogawa state that digitoxin, the most important principle in digitalis, is absorbed from the intestines and not the stomach. The absorption is a relatively slow process, usually not completed before 5 to 6 hours. Experimentally, it could be shown that this absorption is still further delayed where there is stasis in the portal circulation. Digitoxin is much more rapidly absorbed from digipuratum than from the powdered leaves. This explains why digipuratum often has a much more pronounced effect upon the action of the heart than the leaves, even if equivalent doses are employed. If vomiting or nausea occurs after the administration of some digitalis preparation, there may be one of two causes. The principles in the drug may directly irritate the stomach; in such cases the distress is noticed early, even after relatively small doses and is usually accompanied by salivation. The digitoxin is generally still in the stomach and is not absorbed. Or the vomiting may be true toxic effect of the drug seen after too much has been given. Here the symptoms usually appear after 6 to 7 hours. The appearance of vomiting during the first hour is an excellent test for the irritating properties of the preparation. The authors found that digipuratum hardly ever gives rise to vomiting in cats, even if comparatively large doses are employed. The most rapid absorption was obtained with digipuratum in solution, then came the powder in suspension and then powdered and tinctured digitalis leaves. The infusion was

absorbed almost as well as the digipuratum solution, but remained in the stomach much longer and most readily gave rise to emesis. The conclusion arrived at is that digipuratum has least effect upon the gastro-intestinal tract.—Muench. Med. Woch., Oct. 22, 1912.

TREATMENT OF HEPATIC CONGESTION

Vires writes that where hepatic congestion is the result of heart disease the first indication is to lower the venous blood-pressure by venesection, wet cupping or by drastic or saline cathartics. For the first six to twenty-four hours according to the intensity of the symptoms, only boiled water should be given, then milk diluted with boiled water, and finally milk alone, to the amount of $1\frac{1}{2}$ liters a day, gradually increased to $2\frac{1}{2}$ liters. The administration of digitalis is started at the same time. Diuresis may be continued with doses of $7\frac{1}{2}$ grains of theobromine three times a day. Copious intestinal irrigations with cold boiled water, alkalies, saline purgatives, cholagogues in small doses and tub baths followed by massage of the whole body may be given. Where there is cardiac enlargement digitalis may be replaced by the following combination:

Extr. Ergotæ
 Pulv. Scillæãã grn. jss
 Hydrarg. Chloridi Mitis..... grn. $\frac{3}{4}$
 Pulv. Digitalis grn. $\frac{3}{8}$

M. et f. pil No. j. Ft. tal. No. xxv.

Sig.: One pill three times a day.—Jour. des Practiciens, March 6, 1912.

THYROIDIN IN STERILITY

Weil (Muench. med. Woch., Oct. 8 and 15, 1912) mentions the astonishing results of hormone physiology, pathology and therapy, and selects for special consideration the apparent correlation between the thyroid and ovary, which comprises not merely one but a series of possibilities some antagonistic, some complementary or synergistic. During menstruation and pregnancy the thyroid swells, while in castrates the latter organ may be seen to be atrophic. It occurred to the author to test thyroid preparations in primary sterility assumed to be due to ovarian insufficiency. A barren woman with simple goiter received thyroid preparations on general principles and in the course of two or three months became pregnant. The author then exhibited the remedy to two other barren women who aside from a slight enlargement of the thyroid showed nothing to suggest a reason for failure to conceive. After several months, conception took place in both women. Of

four pregnancies while taking thyroid two ended in abortion while one conception is recent and the only case which went to term required forceps. Whether these results are coincidences or indicate a general insufficiency for child bearing is not argued. There appears to be no doubt that the thyroid hormone artificially supplied determined a physiological congestion of the ovary which promoted conception. None of these women appeared to have had any trouble in connection with ovulation and menstruation, so that a rationale for conception is not accepted.—Post Graduate, Dec., 1912.

PRESENT STATUS OF SPINAL ANALGESIA

W. S. Bainbridge, of New York, summarizes his personal experience in 1,065 cases of spinal analgesia. During the early stage of the development of spinal analgesia cocaine and eucaine were the agents generally employed. The author explains the adverse opinions that were first formed of the method as due to the "patchy" anesthesia given by eucaine and the reckless dosage of cocaine and the difficulty of sterilizing it without destroying its analgesic effect or decomposing it in such a way that its by-products gave rise to unpleasant phenomena. An important part in the evolution of spinal analgesia has been therefore the discovery of other drugs and combinations. The drugs most used by the author have been cocaine, stovaine, novocaine and tropacocaine.

Of the 1,065 cases reported by Bainbridge there was only one death (with the diffusible stovaine solution, probably due to status lymphaticus); one case of temporary partial paralysis with complete recovery; one case of failure due to so-called "dry spine" in which puncture at different levels failed to bring cerebrospinal fluid; two cases with alypin, in which there was considerable depression, and one case of idiosyncrasy in which, after several attempts by spinal and local injection, the analgesia was almost nil. In all the other cases there were no accompanying or post-operative symptoms of permanent or serious moment.—Jour. A. M. A., Nov. 23, 1912.

Subsequent to this report, and during the Clinical Congress of Surgeons of North America, a patient in the author's service died after a lumbar subarachnoid injection of stovain preparatory to an operation for hernia. The patient was a chronic alcoholic about 60 years of age. The general physical condition was very bad as a result of the prolonged excessive use of alcoholic stimulants. There was in addition general

atheroma of the arteries, renal insufficiency due to Bright's disease, marked enlargement of the liver, myocarditis with systolic murmur at the base, emphysema, râles over the bases of both lungs and a history of chronic gastritis. An autopsy demonstrated that death had not been caused by stovaine poisoning but was caused by the pathologic conditions enumerated above.

THE DOSE OF CAMPHOR

There is a tendency at present to give camphor in large doses either subcutaneously or intraperitoneally with the idea that the drug is absolutely harmless. Most authors are, however, of the opinion that 2.5 to 4.0 Gm. of the drug given at once may give rise to severe toxic symptoms. In the normal individual, it is likely that there is enough glycuronic acid present to unite with any excess, but this may not always be the case in disease. Whenever the amount of glycuronic acid is reduced experimentally in animals by fasting or by the inhalation of illuminating gas, even small doses of camphor will show a toxic effect, according to C. Happich. Great care is therefore necessary in giving camphor during starvation, in certain mental diseases, carcinomatosis, convalescence after typhoid and diabetes, and also in cardiac disease during decompensation, double pneumonia, illuminating gas poisoning and all conditions where insufficient glucose or oxygen is at hand to form glycuronic acid. In health, the maximum amount tolerated is about 2 to 4 Gm. —Muench. med Woch., Mar. 19, 1912.

HUMAN SERUM IN HEMOPHILIA

A. H. Traver, of Albany, N. Y., gives an account of a bleeder, a boy aged 5, in whom black and blue spots followed the slightest injuries, and who had had a severe hemorrhage previously which was checked with difficulty. Four or five months later he had another hemorrhage, due to biting his tongue in a fall; the injury was very slight, but the hemorrhage resisted all the known remedies, such as tannic acid, epinephrin and several injections of horse-serum. When seen by Traver six days after the injury, the boy was pale, almost pulseless and unable to sit up, presenting an almost hopeless case. The only thing left to be tried was human-serum, and after carefully preparing the father's arm, the median basilic vein was opened and about 8 ounces of blood received in a sterile bottle, which was placed in an ice-box for ten hours. Then 20 Cc. was injected subcutaneously into the child's buttock, and within twenty minutes a clot formed on the child's tongue and the bleeding almost

ceased. The clot became so large that it had to be removed in twelve hours, but there was no renewal of the bleeding. A second and third injection were given at eight-hour intervals as a precautionary measure, though it did not seem necessary, as there was very little bleeding after the first. The child has had no subsequent injury, so it remains to be seen whether the hemorrhage will be troublesome after the next accident. Traver remarks that it was interesting to observe the clot form within a few minutes after the injection when there had been no tendency to clotting before. He believes the injection given was life-saving, as nothing else had any effect. —Jour. A. M. A., Jan. 4, 1913.

TREATMENT OF BLEPHARITIS

When the blepharitis is slight and there is no ulceration, Poulard recommends bathing the lid twice a day with a one per cent. solution of sodium carbonate and at night the following ointment applied to the edges of the lids:

Ichthyolis	grn. vijss
Zinci Oxidi	grn. xv
Paraffini Mollis	grn. lxxx
Adipis Lææ Hydros	grn. lxxx

To soften and remove thick crusts, moist warm compresses should be used and if there is ulceration the palpebral borders should be cleaned before instituting the above treatment. A one to five thousand solution of mercuric cyanide is valuable for any secondary infection, and it may even be necessary to cauterize the edges with silver nitrate. —Progrès médicale.

TREATMENT OF HERPES GESTATIONIS

According to Rudaux, Grosse and Le Lorier, rest in bed and an absolute milk diet are essential in the treatment of gestational autotoxemia. The authors recommend the use of laxatives daily or of purgatives every three days with saline enemata on the intervening days. They also find a warm starch bath lasting one-half hour on every other day of benefit. The following lotion should be applied to the itching parts twice a day:

Chloralis Hydrate	10 Gm.
Aquæ Dest.	1000 Cc.

The following powder is dusted on:

Acidi Salicylici	1 Gm.
Amyli Pulv.	
Talci Pulv.	50 Gm.
Zinci Oxidi	10 Gm.

Chloral hydrate internally is only to be used if the itching becomes intolerable. Where it is not tolerated by the stomach it may be given per rectum in doses as high as two grams dissolved in water or milk. —Therap. Obstétricale.

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FEBRUARY, 1913

EDITOR'S NOTES

A New Cure for Tuberculosis and Syphilis

IMMUNE therapy has been a great disappointment in many diseases, notably in tuberculosis. In view of the brilliant results obtained by Ehrlich in syphilis with a chemical substance of definite composition, it need not surprise that chemotherapy has again become popular and that the effects of many drugs are being most diligently examined in various diseases. Many half-forgotten chemical agents are again being brought to light, in the hope that if given by the now so popular intravenous route they may show a specific effect upon some of the disease-producing germs.

The search for a remedy effective in tuberculosis has been particularly active. Among the compounds recently studied may be mentioned iodized methylene blue and the salts of copper. Most of the cases reported suffered from lupus and also received external treatment so that it is very difficult to decide how much of the improvement was due to the chemicals injected. Other authors have used drugs having a well recognized value in tuberculosis but have combined them with tuberculin, hoping that the congestion resulting in the tubercular foci from the latter will permit of better penetration. Creosote, mercury, arsenic, iodine and salvarsan have been ad-

ministered in this way and while encouraging, the results have not been of such nature as to replace other more simple methods of treatment.

As early as 1890, Robert Koch discovered that one of the most potent germicides as far as the tubercle bacillus is concerned was the cyanide of gold and potassium. Even in a dilution of 1 to 2 million there was a decided inhibitory effect upon the growth of this germ. According to Behring, the anthrax germ is also very vulnerable to this compound, though in blood serum, a concentration of 1:20,000 to 1:30,000 is necessary. It seems that the globulins here interfere with the action of the salt.

Despite these remarkable observations, this gold compound was all but forgotten. Other gold compounds have been employed internally from time to time (in pulmonary tuberculosis, syphilis, scrofulosis, paralysis and alcoholism) but have never gained popularity. Locally, their caustic effect is sometimes made use of in diseases of the eyes. Up to the present, the cyanide compound has never been employed therapeutically, probably owing to its supposed toxicity.

In view of the observations of Koch, it occurred to Bruck and Glueck (Muench. med. Woch., Jan. 14, 1913) that the double cyanide might show some effect in tuberculosis if given by the intravenous route like salvarsan. It was first necessary to study the toxicity of the preparation and the authors soon found that the fatal dose for the rabbit was 15 milligrams per kilogram. The toxic dose was 10 milligrams and resulted in convulsions, pareses and severe dyspnea. Fifteen injections of 1 milligram, given every other day had no effect and at autopsy there were no pathological lesions. When the dose was increased to 2 milligrams, some of the animals died and fatty degeneration of the liver and kidneys was found at autopsy. A hemolytic effect upon human blood was not evident, even in strong concentration.

In the human experiment, cases of lupus were used, since the effect is more evident than in cases of internal tuberculosis, despite the fact that the skin reacts but sluggishly to medication by the blood stream. It may be argued, however, that if a result is obtained in lupus, the treatment of internal tuberculosis will then be still more promising. In all the authors' cases, external treatment was carefully avoided. Gold and potassium cyanide (Merck) was invariably employed in the following doses:

For adults: 0.02 to 0.05 Gm. per dose every second or third day; altogether 12 injections; for children 6 to 14 years old, 0.005 to 0.03 Gm. per dose every second to third day; altogether 12 injections. Under no conditions should the dose be increased, for while 0.08 Gm. was often well tolerated, two cases of transient jaundice were observed, showing that the drug may have a deleterious effect upon the liver in such doses.

The technique is similar to that employed for the intravenous administration of salvarsan and the same care should be exercised to employ only freshly distilled water. The salt is soluble to the extent of 25 per cent. in water and a 1 per cent. stock solution may be kept on hand. One to three Cc. of the latter are diluted with 50 to 100 Cc. saline solution shortly before use. If some of the solution escapes into the tissues, painful infiltrations may result which generally disappear after a few days. Thrombosis of the veins was not observed. Chill, fever, vomiting and diarrhea occur only if the water has not been freshly distilled. Even in cases that had received 21 injections, the urine never contained any albumin.

Within 24 to 48 hours, a local reaction is usually evident, which is very similar to that seen after the use of tuberculin. Later, a therapeutic effect upon the process is unmistakable. Sometimes it appears after the second or third infusion; sometimes later. The lesions will appear more yellow and less inflamed, infiltrations will recede and cicatrization will commence. The least effect is always seen in the verrucous type of the disease. Where pulmonary tuberculosis co-existed, signs of irritation, in the form of slight pleurisy and sanguinolent sputum were observed, hence it would probably be better in these cases to employ somewhat smaller doses (0.02 Gm.).

Still better results were obtained where the treatment was combined with tuberculin injections. The dose just sufficient to give rise to a distinct local reaction is injected in the usual way. Twenty-four hours later, when this local reaction is at its height, the cyanide is injected into the veins. In all cases, the results were much better than those obtained with tuberculin alone.

In primary and secondary syphilis, the effects of potassium and gold cyanide, injected intravenously were about the same as those of a potent mercurial but were inferior to those seen after salvarsan. The spiröchetes rapidly disappeared from the lesions after the injection. In tertiary

syphilis, the drug was almost as effective as salvarsan. It is important to remember that we are here dealing with a third anti-luetic which may occasionally be curative where there are contraindications for the use of the other two.

The authors fully realize that the drug will have to be used for many months and by other clinicians before its value can be definitely decided. While an effect upon the lesions in question is unmistakable, it is still too early to speak of cures. Every aid in the fight against these two dread diseases is welcome and it is to be earnestly hoped that the final verdict will be favorable and that a great step forward has been taken in their extermination.

Dysentery in State Institutions

H. A. Jones, of Howard, R. I., says that dysentery is quite apt to be epidemic in prisons, jails, almshouses, etc., during the months of August and September. When epidemic it occurs in all its forms and bloody dejections are usually found in the demented and aged, whose recuperative powers are low, and arteriosclerosis extends to the finer vessels of the intestinal viscera. When this is very marked the usual remedies appear to have no effect. Jones has gone through the whole list of remedies for dysentery in the pharmacopœia in these cases and used high colon flushings with various medicated solutions. Much useless pain is given the patient by unskillful manipulations in the rectum, and it is best to leave that part at rest. As the disease is considered infectious, isolation is necessary and the patient put to bed. The treatment is begun by giving one grain of calomel at once, and two hours later he gives an acid diarrhea mixture composed of 3 drams of the dilute sulphuric acid of the pharmacopœia with 1 ounce of tinctura cardamomi composita and 8 ounces of water, repeating the dose every two hours during the disease. In conjunction the patient is to be given one tablespoonful of olive oil every two hours and no other drug or food, except to the aged, to whom he also gives a teaspoonful of brandy every three hours. He has found this treatment very effective in the less debilitated and stronger patients, the discharge stopping in three days, the period of bed rest shortened from weeks to a few days and no slumbering appetite aroused by opium or alcohol. He advises its use in military barracks and camps, as well as in state institutions.—*Jour. A. M. A.*, Jan. 4, 1913.

Prescriptions

Painful Cystitis:

Atropinæ Methylbromidigrn. $\frac{1}{32}$

Forminigrn. xv

M. f. pulv. Mitte tales No. x.

Sig.: One powder twice daily.

Obesity:

In youthful adiposity, especially in girls approaching puberty, H. Stern avoids secondary effects from thyroïdin by prescribing it with arsenic and adonidin as follows:

Sodii Cacodylatisgrn. $\frac{1}{120}$

Adonidingrn. $\frac{1}{32}$

Gland Thyroid Sicc. Pulv.grn. $\frac{3}{4}$

M. f. tab. Mitte tales No. 50.

Sig.: Three to four tablets a day.

Chronic Rhinitis:

Acidi Borici 5ss

Mentholis $3\frac{1}{4}$

Adipis Lanæ Hydrosi.....

Petrolatiāā 5x

M. f. ung.

For inhalation a teaspoonful of the following mixture added to boiling water:

Eucalyptolisf. 5ss

Mentholisf. 5ij

Resorcinolis 5j

Guaiacolisf. 5x

—Paris Medicale.

Pruritus Vulvæ:

Bismuthi Subcarbonatis

Zinci Oxidiāā grn. x

Adipis Lanæ Hydrosi.....ad. 5j

M. f. ung.

Ung. Picis Liquidæ.....

Ung. Belladonnæāā 5ij

Tinct. Aconiti5ss

Ung. Aquæ Rosæ.....ad. 5j

M. f. ung.

—J. Howell Evans.

Earache:

Mentholis

Camphoræāā 1.3 Gm.

Phenolis 1.0 Gm.

Glycerini30.0 Cc.

M. Sig.: Warm 10 drops in a spoon and pour into the ear.

Glycerin is said to be superior to olive oil for ear applications, being more penetrating and more easily washed out.

—S. H. Snow.

Tinea Tonsurans:

Camphoræ

Alcoholisāā 5iv

Acidi Picricigrn. viij

M. Sig.: Inflammable. To be painted over entire scalp twice daily.

—Brit. Jour. Derm.

Gastralgia:

Spt. Chloroformif. 5iv

Spt. Aetheris Comp.....f. 5vj

Tinct. Capsicif. 5j

Aquæ Dest.ad. f. 5iij

Uremic Convulsions:

Pilocarpinæ Hydrochloridigrn. j

Tinct. Veratri Viridi.....mxxx

Syr. Tolutanif. 5iv

Aquæ Anisiad. f. 5j

M. Sig.: Teaspoonful in water, repeated in two or three hours if necessary.

Pyelitis:

The following is said to be efficacious where there is pain:

Terebinth Venet5jss

Pulv. Camphorægrn. xxx

Extr. Opiigrn. v

Extr. Aconiti Radicis.....grn. iij

M. Div. in pil. No. xx.

Sig.: One pill every eight hours with a small glass infusion uva ursi sweetened.

Scleroderma:

Ichthyolis5ij

Olei Morrhuæf. 5vj

Lanum5j

Olei Lavandulægtt. xv

M. Sig.: Rub in thoroughly.

Acute Catarrhal Enteritis:

Acidi Sulphurici Aromatici.....f. 5iij

Spt. Chloroformif. 5iij

Tinct. Opii Camph.....f. 5jss

Syr. Krameriæf. 5j

Aquæ Menthæ Pip.....ad. f. 5viij

M. Sig.: One tablespoonful in water every three hours.

—Blair.

Dilatation of Stomach:

Strychninæ Sulphatisgrn. j

Extr. Ergotæ5j

Ferri Reducti5ss

M. Ft. pil. No. xxx.

Sig.: One pill after each meal.

—Swan.

Miliaria:

Phenolis5ss

Acidi Borici

Zinci Oxidi

Amyliāā 5j

M. Sig.: Apply locally.

Grain Itch:

Betanaphtholisgrn. xxx

Sulphur Præcip.grn. xj

Adipis Benzoinatæ5j

—Schamberg.

Chilblains:

Ichthyolisgrn. xv-5j

Resorcinigrn. xv-xlv

Adipis Lanæ5ij

Olei Olivæ5ijss

Aquæ Dest.5jss

M. Sig.: Apply at night on retiring.

Torticollis:

Mentholisgrn. x

Oleoresinæ Capsicigrn. iv

Methylis Salicylatis

Ichthyolisf. 5j

Lanum3xij

Chorea:

Liq. Arsenicalisf. 5ij

Tinct. Capsicimxxv

Extr. Glycyrr. Liq.....f. 5ss

Aquæ Chloroformif. 5vj

Aquæad. f. 5xij

M. Sig.: One tablespoonful 3 times a day after meals for a child between 8 and 15 years of age.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects.

Erythema ab Igne.—Comparatively little has been written about the curious mottled pigmentation chiefly met with about the lower extremities of persons who are more or less exposed to great heat. Dry heat is usually supposed to favor the production of the condition more than moist. The subject has been dealt with and clinical cases of the affection have been described by Dr. M. B. Hartzell, of Philadelphia (*Journal of Cutaneous Diseases*, August, 1912). The author is of the opinion that the affection is more often seen by English than American or German dermatologists. A case is described in which extensive, reticulated, brown pigmentation occurred in the sacral region of a woman of 35 years of age. She suffered from uterine carcinoma, and to relieve the severe pain in the back she had kept a hot-water bag continuously applied for some months. It was probable that the pigmentation in this case was preceded by a certain amount of dermatitis. When the discoloration occurs in syphilitics it is frequently, though erroneously, supposed to be due to syphilis, and it may be mistaken for the pigmentation which often follows in the wake of a syphilitic eruption. In the four cases reported all were decidedly below the normal standard of health, and the author expresses doubt as to whether erythema ab igne can ever occur in a person who is quite healthy. Occasionally the reticulation goes on to thickening or even to vesication, though the latter is rare. Sections of skin were excised in one case and these showed slight but unmistakable parakeratosis of the epidermis with a slight broadening of the rete layer. In other cases the histological findings showed a more or less marked brown deposit of granular pigment in the basal cells of the rete mucosum, showing that the disease is a true inflammatory one, and not simply a staining of the skin with blood pigment.—*Amer. Jour. Derm.*

Sterility in Women.—E. Reynolds, of Boston, says that about ten years ago he reached the theoretical conclusion that in most cases female sterility was produced by abnormal genital secretions destructive to the spermatozoon. While the vaginal secretions are normally acid and destructive to the pathogenic organisms as well as to the spermatozoon, their effect on the latter, he assumes, is normally neutralized in coitus by the alkaline cervical secretions. Any excessive acidity, however, is not neutralized, hence the death of the spermatozoon and sterility. When the cervical secretions themselves are deficient or abnormal, though those of the vagina may not be, sterility may also be a result. It is also probable that the cervical overflow due to congested conditions is in itself a cause of sterility as well as the scantiness and the thickening. Another occasional cause of sterility is abnormalities in the ovaries or tubes, even when slight, but these cases form a more difficult subject for the consideration of the obstetrician. A gross salpingitis is not essential, but sterility may occur even when only one tube is affected from the alterations in the uterine conditions and secretions from the infected tube. The ovary is always affected to some extent, and Reynolds' observations lead him

to suspect that even moderate enlargements, with their many persistent follicles, of these ovaries are in a perverted physiologic condition. As to the prognosis of sterility two forms of the condition are hopeless or nearly so, viz.: that due to infantile or approximately infantile uterus cannot be treated successfully, and sterility occurring after operations for the removal of tube or portions of ovary are, according to his observations, not very hopeful. All other forms of sterility are usually remediable. Sterility due to other causes than infantile uterus can be treated with a satisfactory degree of success. As regards surgical treatment, he says "That the operative alterations of the cervix in shape and condition which insure perfect drainage, together with dilatation and curettage of the uterine cavity, the correction of displacements or other abnormalities which tend to congestion, the reduction of the ovaries to the normal by a conservative operation, and the elevation of the ovaries and tubes to a position in the pelvis which insures a free venous return from these organs, have been followed by a degree of success not before attained in the treatment of this most difficult class of sterilities, seems to be growing increasingly clear with the progress of time."—*Jour. A. M. A.*, Jan. 11, 1912.

Intestinal Intoxication.—Auto-intoxication is, according to C. von Noorden, of Vienna, one of the most misused words in medicine. As first applied to the final stages of diabetes and in uremia and cholemia it could be properly used, but its later application to all forms of pathologic conditions of non-microbic origin is a misuse. In the so-called intestinal forms this is most markedly the case; with the exception of certain conditions in infants the term intestinal auto-intoxication should be rejected completely. One may speak intelligently of auto-intoxication only when the poisons are formed by the tissues of the body itself, the so-called endogenous poisons. We know practically nothing, however, of the poisons which are formed in the wall of the stomach or intestines. On the other hand, we know that the contents of the intestines are a rich source of poisons both through the peptic and tryptic digestion and by the action of bacteria decomposition. How detoxication occurs and health is preserved is unknown. Von Noorden considers this one of the most important biologic problems of the future. Valuable attempts at its solution have been made by Metchnikoff, but he goes too far in his assumptions and conclusions. All these toxins, however, are exogenous and, while man is able to protect himself against the most of them, there are others, like the cholera toxin, which are beyond his power, hence the importance of diet regulation and care in the prophylaxis. After these remarks Von Noorden describes a special form of intestinal intoxication studied by him, in which there is a certain degree of constipation and retention of fecal contents in the sigmoid flexure; certain symptoms, like a feeling of fullness, after eating, which the patients usually refer to the stomach which empties itself slowly and develops a high degree of acidity. Examination of the abdomen reveals over the sigmoid a certain point sensitive to pressure, which corresponds to McBurney's point in appendicitis, and which he calls the S point. Diarrhea may occur instead of constipation from the irritation of the fecal masses which are retained by spasm of the intestinal wall. In many cases the

symptoms are restricted to those mentioned, but in others a peculiar clinical picture appears, wandering pains all over the body from the trigeminal area to the sciatic. The joints may also be affected, and we have here a mild polyneuritis with circulatory phenomena indicating irritation in the vagus area, such as slow pulse, extrasystoles, dermatography, etc. In the majority an unusual excretion of indican is found. The author's assistant, Dr. H. Eppinger, has been able to extract a poisonous substance from the feces of some of these patients which has a marked effect on the vagus and reproduces the symptoms described in animal experiments. He thinks they have succeeded in isolating a bacterium of the paratyphus group but differing from the known forms. The production of poisons is different in different culture mediums, but the experiments are not yet sufficient for exact details. Another symptom accompanying the picture is slight subfebrile temperature variation, which may cause suspicion of latent tuberculosis but which disappears when the intestine is regulated. The treatments have varied with the varying diagnoses. Usually the first diagnosis is simple neurasthenia or rheumatic trouble, frequently there has been confusion with myalgia, neuralgia, arthritis and uric acid troubles, and treatment has varied accordingly; but regulation of the bowels is the necessity. Each case must be studied by itself, and Von Noorden prefers dietetic management to the use of laxatives, etc. Usually two or three weeks are sufficient to indicate the line of treatment to be adopted.—*Jour. A. M. A.*, Jan. 11, 1913.

The Phthalein Test for Renal Function.—J. T. Geraghty, of Baltimore, says that the value of a renal functional test is partly in determining whether one kidney is sufficient, but more to obtain accurate knowledge of the renal lesion in nephritis, the estimation of the total function in cases of urinary obstruction and for diagnosis in revealing unsuspected lesions or confirming suspicions of such. Two years ago Geraghty and Dr. L. G. Rowntree reported a method of estimating the excreting power of the kidneys by means of phthalein. The technic of the method is given as follows: "One Cc. of phthalein solution (6 mg.) is injected deep into the muscles, preferably the lumbar muscles, and the patient instructed to void at the end of two hours and ten minutes, and again at the end of two hours and ten minutes from the time of injection, each specimen being kept separate. The drug should appear normally in about ten minutes, and this much time is consequently allowed for its appearance. In this method no account is taken of the time of appearance, the main reliance being placed on the quantity excreted. This method is extremely simple." In cases with urinary obstruction a catheter must be employed and the time of appearance is estimated, the collection being made for two separate hours from the time of appearance of the drug in the urine. The estimation of the amount of drug excreted is made by a modified Hellige colorimeter quite accurately for practical purposes with two graduated test tubes. The test has been employed now in over 200 cases of nephritis of varying types, approximately 350 cases of urinary obstruction, mostly prostatic cases, in 150 cases of unilateral or bilateral disease, in conjunction with ureteral catheterization, and in 1,000 other cases as a part of the routine examination. This added

experience with the test confirms his earlier conclusions as to its reliability and accuracy. Brief details are given of a number of cases. It would be well to keep in mind in using it that it is only a test of the excreting power of the kidney, but furnishes in conjunction with ordinary clinical examination accurate information that can be obtained at present in no other way.—*Jour. A. M. A.*, Jan. 18, 1913.

Dysontogenesis and Cancer.—One of the most striking truisms in medicine, one which is verified daily, is the necessity of cumulation of causal elements to produce a pathological state. This is so self-evident that it is often ignored; realization of it should do much to discredit one-cause hypotheses of disease, such as are constantly in evidence in non-professional minds. The "cause-all" is a fitting companion to the "cure-all." Ernst at a meeting of the Naturhistorisch-medizinischer Verein of Heidelberg (*Muench. med. Woch.*, July 16) calls attention to the dysontogenetic element which may underlie cancer. The embryonal theory of cancer is, of course, very old, and the existence of branchogenous cancer and similar forms associated with congenital anomalies was largely responsible for Cohnheim's "misplaced residue" hypothesis. The author goes no further than to call attention to certain cancers in which such obvious factors as chronic irritation and atrophic change are not concerned. In an individual with profound dysontogenesis of the central nervous system and urinary apparatus an epidermoid cholesteatoma of the angle of the pons cerebelli was found to be the starting point of a carcinosis so widespread that it extended over the meninges and ventricles and descended down the spinal canal as far as its lumbar portion. No primary focus was found. The parasitic theory and irresponsible cell growth theory do not necessarily exclude each other, nor do they exclude the dysontogenetic theory. Individual competitive theories often resolve themselves into so many distinct causal elements.—*Med. Record.*

Blood Transfusion.—The possibility of isoagglutination, says M. Fishbein, of Chicago, makes the choice of a donor for blood transfusion an important matter. It has been shown that individuals fall into definite groups as regards this phenomenon and only a person belonging to the same group as the patient who is to be transfused should be selected as a donor. He proposes a method for testing the bloods. He prepares a 2 per cent. suspension of the bloods separately with sodium citrate and physiologic salt solution from all the donors and a somewhat larger quantity of the same from the patient. The remaining blood is poured into a centrifuge tube and allowed to clot. With a clean needle the clot is loosened from the side of the tube and the tube centrifuged for a few minutes to obtain an upper layer of absolutely clear serum. This procedure is carried out with blood from each of the proposed donors and the patient. Then on an ordinary piece of window glass, carefully sterilized ten small circles are made with melted paraffin, in two rows of five each, thus, assuming that there are five donors, ten paraffin cups are made, each holding at least four drops. In each cup in the first row is placed one drop of the suspension of the patient's blood, and in each cup in the second row are placed two drops of the patient's serum. To cup one in the first row are added two drops

of the serum of donor one, to cup two two drops from donor two, and so on. In cup one of the second row is added one drop of the blood of donor one, and to cup two one drop from donor two, etc. With a narrow glass rod the fluids are mixed thoroughly, the rod being washed in citrate solution and wiped after each mixing. In practically all instances iso-agglutination, when present, becomes visible macroscopically after half an hour at room temperature. The mixture can be inspected also microscopically. It is obvious, Fishbein says, that in testing for iso-agglutination in larger groups, as in twenty, the greatest advantage is to be derived from this method. It has seemed so simple and easy of performance in comparison with other methods that it was thought best to make a brief report of it.—*Jour. A. M. A.*, Sept. 7, 1912.

Chromo-Ureteroscopy.—The results of 200 chromo-ureteroscopies, using indigocarmine as a functional test, are summarized by B. A. Thomas, of Philadelphia. He prefers this test to that by phenolsulphonaphthalein as not requiring ureteral catheterization and thus doing away with possible infection and the difficulties due to that method. He summarizes his results in the 200 cases as follows: 1. Chromo-ureteroscopy based on the employment of indigocarmine is the most valuable single test for renal sufficiency or insufficiency that we possess, because it is the most practical, affording the same diagnostic advantages as the functional tests dependent on bilateral synchronous ureteral catheterization, the technic and determination of which are tedious, complicated and consume much more time. 2. The test is particularly applicable to surgical affections of the kidneys and ureters, and almost invariably suffices to establish the prognosis and diagnosis, if, when the condition arises, it be supplemented by ureteral catheterization, urinalysis, collargol injection or skiagram. 3. Comparative observations of the onset and intensity of the color elimination have never failed to determine the functional sufficiency of the supposedly normal twin organ, in view of operative intervention. 4. It is of no value in movable kidney. In the absence of ureteral kink or hydronephrosis, pyelitis, essential hematuria, early tuberculosis and certain other forms of nephritis and small tumors not involving the major portion of the parenchyma, although ureteroscopy itself is not without value in these conditions. 5. It is of value in the differential diagnosis of hemorrhagic and chronic interstitial nephritis from other types of the disease. 6. Supplemented by ureteral catheterization and the x-ray it will serve to diagnose practically every case of renal and ureteral calculus. 7. In hydronephrosis, pyonephrosis, pyelonephritis, ureteral occlusion and chronic tuberculosis of the kidneys involving approximately one-third of the parenchyma, chromo-ureteroscopy is of exceptional merit. 8. In simple hypertrophy and carcinoma of the prostate causing chronic retention of urine and *vis a tergo* urinary pressure on the renal parenchyma, the indigocarmine test promises to be of value in the differentiation of operable and non-operable cases. 9. Chromo-ureteroscopy is also of great value in the differential diagnosis of obscure abdominal conditions; also in facilitating difficult ureteral catheterization. 10. The duration and quantity of indigo excretion are of interest scientifically and also of some diagnostic importance, but as a routine are not practicable of de-

termination and are unnecessary of notation. 11. Indigocarmine is eliminated from functionally sufficient kidneys as a dark blue in from three to twenty minutes and as a light blue not later than fifteen minutes. In 90.1 per cent. of kidneys it appears either as a dark or light blue in fifteen minutes; in 61.1 per cent. it is observed in ten minutes. 12. If the indigo does not appear at the expiration of fifteen minutes (light blue) or twenty minutes (dark blue) it is evidence of serious insufficiency of the renal function. 13. If the elimination of the dye does not occur at all the respective kidney or ureter is gravely diseased. 14. The intensity of the color reaction depends to some extent on the concentration of urine but largely on the individual excretory power of the organ. 15. A surgically diseased kidney eliminates the dye less intensely than its normal twin organ, or not at all. 16. The test is very simple, and by alternate observations of the two ureteral orifices differences between the two kidneys are readily, accurately and speedily noted.—*Jour. A. M. A.*, Jan. 18, 1913.

Family Pernicious Anemia.—After remarking that pernicious anemia is not rare, though its heredity or family occurrence is so considered and has been denied by Ehrlich and Lazarus in Nothnagel's Encyclopedia of Medicine, C. J. Bartlett, of New Haven, Conn., briefly reviews the published reports of such cases and gives an interesting family history. Five cases are reported, the father and mother and three sons, well-to-do farmers living in northern Vermont. The history of the first two is second hand; the history of the father's case was that of pernicious anemia and no other cause of death was discovered at the autopsy. The mother was anemic and emaciated; no autopsy was made and the cause of death was undetermined. It was, Bartlett thinks, not due to the pernicious type of anemia, but rather to the chlorotic or secondary type. Of the other three deaths two were definitely due to pernicious anemia; in the other the symptoms and autopsy findings were characteristic, but blood examinations were not made. In addition, the daughter has marked anemia resembling the pernicious type, but the blood findings do not correspond, and one of two surviving brothers suffers from frequent epistaxis that is hard to control. Two paternal uncles died with symptoms at least suggestive of pernicious anemia. All the cases seemed to originate on the paternal farm and physicians of the neighborhood and adjoining district seem to suspect some local causal factor. They tell of other similar or suspicious cases, and Bartlett thinks there may be some grounds for their belief. He has had knowledge of one other case of pernicious anemia and one of the most pronounced cases of chlorosis he has had for years came from this district. If there is a local cause of anemia there will be, he says, an interesting problem for some one to solve.—*Jour. A. M. A.*, Jan. 18, 1913.

A FIVE PER CENT SOLUTION OF PHENOL in glycerin dropped warm into the ear will relieve the pain in non-suppurating acute otitis media.—*Amer. Jour. Surg.*

SEVERE NEURALGIC PAIN over the bridge of the nose indicates pressure on the anterior ethmoidal nerve, probably due to a high deviation of the nasal septum.—*Amer. Jour. Surg.*

Book Notes

DIGITALIS ASSAY.—By W. Harrison Martindale, Ph. D., Marbury, F. C. S. A communication to the Pharmaceutical Society of Great Britain at an evening meeting in London, Dec. 10th, 1912. This most recent work on the assay of digitalis reflects the same degree of high scientific attainment and thoroughness which we have become accustomed to associate with the name of Dr. Martindale. The subject matter, in addition to a general and historical account of the digitalis glucosides, is concerned with a comparison between physiological and chemical results with an approximate simple chemical assay method. The text is supplemented by a number of tables and one colored plate. Dr. Martindale has demonstrated that digitalis preparations can be assayed by a simple colorimetric method. The process which he has devised, though not claiming accuracy or comparison with the physiological methods, will at any rate show whether a tincture is below or above standard. The apparatus and reagents required are very simple, and the whole process should not take more than three hours to carry out. This work should find a place in every physiological laboratory, and further should prove of value to every pharmacist or physician who is interested in knowing whether his digitalis is up to standard or not.—H. K. Lewis, 136 Gower Street, W. C. London, 1913.

MANUEL PRATIQUE de Kinésithérapie, fascicule II. par H. Stapfer, Gynécologie. This second volume is devoted to the application of kinesitherapeutic measures in gynecology. Following an interesting historical account the author discusses the therapeutic value of massage and gymnastics. He then describes the technique and methods to be used in the treatment of the various pathologic conditions. The work is concluded with a bibliography the length of which is surprising. Other volumes to appear in this series are devoted to respiratory diseases, orthopedics, disorders of nutrition, skin diseases and traumas. (1 vol. in 8° avec 12 figures dans le texte. Price, 4 francs. Librairie Felix Alcan, Paris, France.)

LEHRBUCH DER HAUT- UND GESCHLECHTSLEIDEN. Einschliesslich der Kosmetik. 1 Band. Lieferung 3, von Sanitätsrat Dr. S. Jessner. Vierte sehr erweiterte Auflage. Mit 33 Abbildungen auf 31 farbigen Tafeln und 7 Abbildungen im Text.—Like the preceding sections, this third section to appear of Dr. Jessner's work is carefully prepared and the subject matter presented in a clear and concise manner. The colored plates are remarkably good. Among the topics discussed are dermatitis toxica, pityriasis ruber Hebrae, lichen ruber, pityriasis rubra Devergie, psoriasis, diffuse phlegmon, furuncles, ulcers, folliculitis, acne, lupus, scrophuloderma, leprosy, etc. The low price of these books places them within the reach of every physician. The plates alone are well worth the price. (A Stuber's Verlag, Würzburg, Germany. Price, M. 2.75 per section. Vol. 1 complete, 4 sections, M. 12 bound.)

Pamphlets Received

Spinal Analgesia—Development and Present Status of the Method, with Brief Summary of Personal Experience in 1,065 Cases. By William Seaman Bainbridge, Sc. D., M. D. Reprint from Jour. A. M. A., Nov. 23, 1912.

Some Data Concerning a Humeral Etiology of Spasmodic Asthma. Outline of Treatment in Accordance with the Foregoing. By B. Oettinger, M. D. Reprint from Med. Record, Nov. 9, 1912.

The Lilly Scientific Bulletin, Series 1, No. 1. Physiological Drug Testing. Susceptibility of the Guinea Pig to Poisoning by Digitalis. Determination of Resorcinol.

Need for Better Vital Statistics. Report of Health Committee Association of Life Insurance Presidents.

Influence of Vital Statistics on Longevity. By Dr. W. S. Rankin, Raleigh, N. C., 1912.

The After-Care of Discharged Cases of Pulmonary Tuberculosis. By Alfred Meyer, M. D., of New York. Reprint from Med. Rec., Aug. 10, 1912.

Dedication of Lane Medical Library, Leland Stanford, Jr., University. Addresses of Timothy Hopkins, Emmet Rixford and David Starr Jordan. 1912.

U. S. Dept. of Agriculture, Bureau of Plant Industry. Bulletin, No. 235. I. Wild Volatile-Oil Plants and Their Economic Importance. II. Black Sage. III. Swamp Bay. By Frank Rabok, Washington, D. C. 1912.

Contributions from the U. S. National Herbarium, Vol. 13, Part 12. New or Noteworthy Plants from Colombia and Central America. By Henry Pittier, Washington, D. C. 1912.

One Hundred and Fourth Annual Report of the Société Française de Bienfaisance de New York. 1912.

Twenty-fifth Annual Report of the Waltham Hospital. 1912.

The Diagnosis of Pain in the Upper Abdomen. By Judson Deland, M. D., of Philadelphia. Reprint from Jour. A. M. A., April 6, 1912.

Eighteenth Annual Report of the Industrial School for Crippled and Deformed Children. Boston, Mass., 1912.

Tennessee State Board of Entomology. Eighth Annual Report. 1912.

U. S. Dept. Agriculture. Report of the Acting Chemist. By R. E. Doolittle, Washington, D. C. 1912.

Würzburger Abhandlungen aus dem Gesamtgebiet der praktischen Medizin. Band xiii. Heft 1 u 2. Magenkrankheiten von Dr. F. Schilling. A. Stuber's Verlag, Würzburg, Germany, 1912. Price M. 1.70.

The De Keating-Hart Method of Fulguration and Thermo-radiotherapy. By W. S. Bainbridge, Sc. D., M. D., of New York. Reprinted from the "Medical Record."

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THE DOCTOR HIS OWN SURGEON.—Paul Reclus has commented on the courage and stoicism necessary for the act of what he calls "autotomy," or surgical operation upon one's own body. He has described at some length four examples of this heroic procedure. The first story is that of a French surgeon who, having acquired a small outgrowing tuberculoma of the right index finger following an operation wound, determined to excise it under cocaine anesthesia. This he did, surrounded by his class, in a curiously unsurgical way, by fixing the instrument—first a scalpel, then a sharp spoon—in the left hand and performing all the necessary movements with the diseased right hand. In spite of this novel technique the result was quite satisfactory. His only discomfort was a little nausea at the unpleasant sensation of scraping his own periosteum; this was, however, corrected by a sip of hot coffee. In the second case the surgeon operated on himself for bilateral ingrowing toe-nail, apparently without pain and with absolutely satisfactory result. The hero of the third story was a Turkish military surgeon attached to Professor Reclus' own clinic, who was operated on for double inguinal hernia under local anesthesia with such complete success that he determined to remove for himself a troublesome varicocele. The procedure was quite painless and the result perfect. The fourth "autotomy" was performed by M. Regnault, a naval medical officer, who was led to undertake a radical cure of his own hernia. He anesthetized the area of operation by injecting cocaine into the several layers of tissue concerned, after a preliminary injection of morphine into the subcutaneous tissues of the thorax. He guarded himself from disaster by enlisting the help of two colleagues, who stood by prepared for action in case they were needed. However, all went well, and there was neither pain nor mishap.—*The Lancet*, September 21, 1912.

THE DOCTORS OF THE SULTAN.—The difficulties that beset the Turkish empire and its ruler are at present attracting the attention of the outside world. It is not without interest to learn about the medical attendants at the Porte. These are numerous and belong to various ranks. The chief physician is Dr. Biringi Pasha, next comes Dr. Heching Pasha, the third is Dr. Uchingi, and the fourth is Doringi Pasha. There are many others. While the duty of the medical staff is to visit the infirmary of the seraglio twice a day, the especial task of Dr. Biringi is to look after the health of the Sultan and his favorites. In the case of any grave illness of one of the Sultan's concubines the visit of the doctor to the harem is made with considerable ceremony. Accompanied by the captain of the eunuchs and by an aged female attendant of the harem, the physi-

cian is brought to the presence of the patient and inquires briefly as to her illness. If it is necessary to feel her pulse the patient's forearm must be covered with a veil. If any other part of the body must be examined this must also be sedulously concealed.

An anecdote related of Abdul Hamid conveys an idea of the manner in which the medical practice of the palace is carried out. A daughter of Hamid had an attack of appendicitis. The Sultan, who had not sufficient confidence in the physicians of the palace, summoned von Bergmann from Berlin. But this condition was imposed upon the eminent German surgeon: Before the latter would be permitted to operate upon the Sultan's daughter he would have to operate on another case of appendicitis in the presence of the Sultan. This was accordingly done. Even then the Sultan hesitated in granting his consent to have his daughter operated upon. A certain Turkish physician was then called in who promised to cure the girl without an operation. He kept her for a few days on a diet of olive oil and figs. The appendicular pain disappeared and the one who effected this magic cure was given the title of Biringi Pasha.—*Revista Ospedaliera*, per *Med. Rec.*

THE "SAFE-TRIANGLE" or "interpleural space," for exposing the heart, is at the left edge of the sternum behind the three lower costo-cartilaginous attachments.—*Amer. Jour. Surg.*

ZÖOPHILIA.—The tender regrets of Burns over the wee mouse whose nest was disturbed by his plough, voiced a natural and kindly feeling for the distressed little housekeeper, but the modern sympathy for the laboratory mouse is a morbid sentiment cultivated by over attention to fictitious tales of cruelty towards mice and guinea pigs. The yielding to sympathy like other creditable inclinations should in the normal mind be subject to restraint. All true culture is a process of repression. One bias after another is controlled until the highly cultured man represents what is attained after certain natural inclinations have been suppressed. The more we control both healthy and morbid impulses the more cultured we become, and with this process of repression, philosophers and moralists tell us, should always be a concurrent development of sympathy and unselfish interest in the welfare of others. Accordingly we have a cult of excellent people who not only support the Society for the Prevention of Cruelty to Animals and naturally cluster around the Audubon Society, but who go much farther and in their tender yearnings for guinea pigs and rabbits would have all our laboratory work subject to police inspection and control. Here again, repression should do its perfect work for interest in the beasts of the field and the fowls of the air may be carried to a pathological limit. The charge of wanton cruelty and indifference to suffering brought by antivivisectionists is a myth of the imagination "distraught twixt fear and pity," is not justified in the practice of modern laboratories and should fade away in the radiance of the real motive actuating the pathologist who inoculates a cavy to determine the virulence of a diphtheria bacillus, or learn the protective strength of an anti-rabic serum. Without the knowledge thus gained it is impossible to treat our unfortunate patients successfully, as both diagnosis and treatment depend on the degree of certainty that comes and

can only come from such experiments. It is our bounden duty to turn on the light in this matter and give our patients accurate knowledge of laboratory methods and achievements. Enlightenment may help disoriented intellects to see the genuine value of such work, that it is not unmixed with kindly regard for the harmless animals experimented upon, that the motive is the highest desire for helpfulness—to determine the cause of disease and discover the best treatment, that this method of study has yielded cures for diphtheria, typhoid fever, hydrophobia, tetanus, spinal meningitis and demonstrated the efficacy of autogenous vaccines for various infections and that thousands of human lives have been saved and an immense amount of human suffering prevented by such carefully conducted laboratory tests.

These hypersensitive people who rail at mis-called "vivisectionists" may be brought to a saner view by learning that their mountain is only a mole hill, that the slight distress inflicted is insignificant compared with the immense amount of misery avoided and that there is no cruelty lurking in the routine work of modern laboratories. Physicians may well consider themselves missionaries whose duty it is to enlighten a misinformed and misjudging public on this important subject.—Providence Med. Jour.

VAGINAL HYSTERECTOMY is more dangerous than abdominal hysterectomy when the uterus is adherent.—Amer. Jour. Surg.

A GREAT PHYSICIAN OF THE MIDDLE AGES.—One of the famous Jewish physicians of the Middle Ages was Moses Ben Maimun, commonly known as Maimonides, who was born at Cordova, then one of the greatest centers of Arab culture, in 1135 or 1139. He was educated there, and after wandering about for several years with his family he became physician to Saladin, whose name is well known owing to his relations with Richard Cœur de Lion. Maimonides records that every morning he went to the palace, and if any of the numerous officials and dependents there were ill he had to prescribe for them, getting back to his own house in the afternoon, "almost dying with hunger." There he would find, in his own words, "Jews and Mohammedans, a varied crowd who are seeking my medical advice. There is

scarcely time for me to get down from my carriage and wash myself and eat a little, and then until night I am constantly occupied so that from sheer exhaustion I must lie down. Only on the Sabbath day have I the time to occupy myself with my own people and my studies, and so the day is away from me." Maimonides wrote on philosophy as well as medicine. The most interesting of his writings was a series of letters on dietetics written for the son of Saladin, who seems to have been something of a neurotic, suffering from indigestion, constipation and depression. The rules laid down by Maimonides have become part of the popular medical tradition. In view of the originality claimed by so many minor prophets of the present day for views that are almost as old as disease, it may not be amiss to give a summary of a few of them. "We should eat and drink only when hungry and thirsty, and should be particularly careful of the regular evacuation of the bowels and bladder. The inclination should as far as possible be satisfied at once. A man must not overload his stomach, and should not drink much during the meal, and only of water and wine mixed. Food should be taken always in the sitting position. There should be no riding or walking or movement of the body until digestion is finished. We should sleep for eight hours, and so arrange our sleep that the end of it comes with the dawn, so that from the beginning of sleep until sunrise there should be an interval of eight hours. We should eat what is easily digestible before what is difficult of digestion—the flesh of birds before beef, and the flesh of calves before that of cows and steers. In summer we should eat cooling food, acids, and no spices. Special care should be taken to have regular movements of the bowels. Every medical means should be taken to overcome constipation. Immoderate eating is a poison to men and the cause of many of the diseases that attack them. Most diseases come from eating either too much or unsuitable food. Every week at least a man should take a warm bath. He should not bathe when hungry nor after eating till the food is digested and should bathe the whole body in warm but not too hot water, and the head in hot water. Afterwards the body should be washed in lukewarm water, and finally cold water should be used. Bleeding should not be frequent; it is only meant for serious illness.

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WHEN OPERATING UPON A CARCINOMA of the stomach be sure to suture the layers of the abdominal wall with silk or linen. In these cases healing is very slow and the wound may burst open if absorbable sutures are used.—Amer. Jour. Surg.

SOME DON'TS—MEDICAL AND SURGICAL is the title of a handy little booklet that has recently come to our desk. The scope of the little work is indicated by the following chapter titles: "Appendicitis Don'ts," "Cancer Don'ts," "Cardiac Don'ts," "Gynecological Don'ts," "Gastric Don'ts," "Genito-Urinary Don'ts," "Salvarsan Don'ts," "Life Insurance Don'ts." A copy of the little booklet will be sent to any of our readers who address the Fellows Co., of New York.

SANITARY SCIENCE.—The profounder knowledge of sanitary science and its practical applications have played a conspicuous part in the great advances, which have made easier the every-day life of our modern era. Without such knowledge it is questionable whether the great populations of modern cities and urban areas could continue for any length of time to exist. Greece and Rome in ancient times, while having some knowledge of sanitation, yet were repeatedly visited by epidemics and plagues; neither people, in spite of the lofty ideal of physical beauty of the one and the elaborate system of public baths of the other, were sanitarians in any but a loose sense. Nor did the passing of time, and the numerous plagues and epidemics of the middle ages, until recently teach anything.

Consider the simple fact that the "black death" or great pestilence in the middle of the four-

teenth century is estimated to have carried off 100,000 persons in London alone, and in Europe at large approximately 25 millions. And if any inquirer is curious to obtain what may be termed a psychological grasp of what a plague on an appalling scale really means by actual experience, there are the vivid observations by Pepys in the *Diary* on the plague of 1665, when he was about thirty-five years of age and the sharpest of observers; or, *longo intervallo*, the *Journal of the Plague Year*, by Defoe, one of the most remarkable of all instances of brilliant verisimilitude, for he was only a child of six when it ran its rampant course through the crowded tenements of the city of London of the Stuart regime. It is necessary in point of time to pass well into the eighteenth century before the science of sanitation or hygiene begins to assume some definite shape in a really practical advance in connection with the broad problem of public health, or the narrower, that of the individual citizen. Now many enlightened communities have well-organized laboratories for the study of the science of public health on the one hand, and on the other the medical officer of health is an institution practically everywhere.

It is true that the *cloaca maxima* and aqueducts of the Romans indicate that Romans were alive to the importance of these conveniences. It is true that state physicians were appointed by them, their number varying according to size of the town, a definite district being assigned to each. But considering the paucity of basic medical and hygienic knowledge at that time, to which we have many clues in preserved writings, there can further be no serious comparison between ancient and modern practice in matters of public health.

It is also true that the Mosaic code of laws, sound in their import, and the rigid way—quasi-sacramental in practice—in which the Jews applied those laws in the entire round of physical well-being, form the most conclusive evidence of the true measure of sanitary knowledge in the past. Yet the eighteenth marks the opening of sanitary practice as it is understood to-day. Only then were systems of drainage organized, and vaccination, for instance, in connection with the ravages of smallpox used as a prophylactic. In reality it may safely be conjectured that the serious outbreaks of cholera from 1831-2 onwards gave the signal for the urgent need of putting sanitation on a sound basis everywhere. So late as 1856 the statement has been made on good authority, the arrangements for sewage and the

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drainage of towns were most defective. Sewers were rare and wrongly constructed, cesspools common, and house drains absent. *Nous avons changé tout cela!* But, despite everything now accomplished, much remains no better than before as a rule outside a radius of ten miles of the boundaries of the majority of cities and towns. The fact is notorious. The problem of the best sanitation is of cardinal importance to every member in every community without distinction, and to tackle it unceasingly and intelligently the first duty of every municipality and rural authority, larger or smaller.—Public Health Journal.

To PERFORM GASTROSTOMY upon a patient with esophageal obstruction, who can painlessly swallow fluids, is a needless, not to say a cruel, operation—except as a preliminary to a more radical procedure.—Amer. Jour. Surg.

MARITIME QUARANTINE.—The report of the Public Health, Hospital and Budget Committee of the New York Academy of Medicine on quarantine in the maritime cities of the United States is published in full in The Journal A. M. A., January 18. It was prepared by the executive secretary, E. H. Lewinski-Corwin, and supervised by the other members. After noticing the need of quarantine and the dangers threatened at the present time, he gives a history of quarantine in Europe and this country and the legislation accompanying it, which is a valuable summary on the subject. At the present time the general government controls quarantine excepting in the ports of New York and Boston, where the control is still under the state. The advantages of federal control are stated: first, in its general application to the country as a whole, and the need of federal control in New York is very evident, as it is the main inlet of immigration; second, the distribution of the financial burden, and, third, the futility of local quarantine to keep out disease; the need of uniform quarantine regulations and procedures; the avoidance of conflicting authority and the co-operation with other branches of government are practicable under national and not under state control. It also seems more probable to keep quarantine administration out of politics than is possible in the case of changing state officials. The arguments favorable to municipal control are given as follows: 1. The government officials have not had experience in managing such extensive quarantine measures as are called for in a great port like New York. 2. Local control is more convenient for commerce. 3. Uniform rules are undesirable when governing different local and climatic conditions. Federal quarantine rules are insufficient. 5. Federal officials feel less responsibility than municipal or state appointees. 6. Federal control is unconstitutional. These claims are taken up and answered in detail. The statement that the national public health service lacks experience is disproved by the records of all the other large ports in the country, where their work has received the highest commendation. Second, the advantage of absolute independence of the local health officer are exaggerated. With our present means of communication, communication with Washington, if required, would cause no serious delay or inconvenience to commerce, and this is acknowledged by the representatives of the shipping interests. Uniformity of rules does not mean rigid enforcement of the same in every part of the coun-

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try. Federal control does not bar such supplementary measures as may be desired by local authorities, or curtail the rights and power of the state, and there is certainly less danger of inefficiency of responsible federal officials. As regards the constitutional question, the subject has been discussed by high authorities and it is a well-established principle that quarantine regulations of commerce are in effect and as such are of national character. The report is briefly summarized in the following: 1. Because of the international character of modern commerce the tendency of the last fifty years has been from local and provincial regulations to uniform national and international rules and laws. 2. Prior to 1893 there was no national system of quarantine in the United States. Since that time forty-eight ports have come under the control of the Public Health Service of the Treasury Department, so that there are at present only two ports whose quarantine stations are managed by local and state authorities. 3. In order that the United States may be a responsible party to international agreements regarding quarantine regulations it must have control and supervision over all the ports of the country. 4. The record of the past work of the United States Public Health Service is such as to insure confidence in its efficiency. It has a well-trained staff of medical officers and is equipped for efficient quarantine administration. 5. Quarantine work is essentially scientific in its nature and cannot be carried on efficiently unless the tenure of office is independent of changes in administration and of politics. 6. From the point of view of convenience, efficiency and uniformity of administration, economy and law, the arguments are in favor of a national control of quarantine at all ports of the United States. The report recommends that the quarantine service of New York be transferred to the national government.

THE EXAMINATION of the prostrate gland, per rectum, is best accomplished with the bladder empty. After natural micturition, draw off the residual urine. In this way, more correct knowledge of the size and other features of the gland are obtained than if the bladder be distended.—Amer. Jour. Derm.

DYSTROPHY OF HAIR AND NAILS.—Three new cases of hereditary family dystrophy of hair and nails, identical with the two previous cases reported, are reported by J. S. Eisenstaedt, of Chicago. The patients are three brothers, the third, fifth and eighth children in a family of eight, seven of whom are living and in good health. None of the other children were ever affected. The father shows no peculiarities, nor, as far as has been learned, have any of his ancestors. The condition has existed in four previous generations on the mother's side, the mother, the grandfather, great-grandmother and the great-great-grandmother. It would appear that the disease was not sex-confined. There are probably other collateral branches of the family affected, but definite knowledge of them is lacking. A minute description is given of one of the cases. Microscopic examination of the individual hairs showed nothing abnormal. There were no parasites, nodes, rings, air bubbles or splitting of the extremities. The growth was short—not over 2½ inches—though there had been no recent hair-cutting. There seemed to be some anomaly in the implantation. In the previously published reports mental deficiencies and paro-

nychia have been noted, but these were absent in these patients as far as could be determined. In one of the three patients the presence of the thyroid cannot be determined. The possible relationship between the family dystrophy of the hair and nails and acanthosis nigricans occurred to the author, and one of the patients shows the peculiar papillary hypertrophy not unlike that observed in that disease. Another suggestive fact is, that the mother, also affected, died of some malignant abdominal growth after the birth of her youngest child. Eisenstaedt thinks that a better understanding of general metabolism, and especially of the internal secretions, will be needed to clear up the obscurity at present existing in regard to these conditions. The article is illustrated.—Jour. A. M. A., Jan. 4, 1913.

IN TRACHELORRHAPHY care must be taken not to close the cervical canal at any point.—Amer. Jour. Surg.

A MATHEMATICAL ENIGMA for the doctor's children to solve.—Dr. R. L. Hammond, of Woodsboro, Md., in a recent communication calling attention to "the overzealous activities in certain fields of labor where the tendency is to underrate the value of the eternally reliable agents, that the Athenian cry for something new shall prevail," submits the following enigma, which he suggests the doctor's children may possibly solve:

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met one hundred men with microbes possessed, under whose skin bacterial vaccines and anti-toxins were an ingest; each one's one hundred microbes multiplied so fast that one yielded ten thousand of the best, and each man that was an infest the microbes attacked with great zest. Of men and microbes and all the rest, who and how many reached Success?"

THE X-RAY SHADOW of a deposit in the sub-acromial bursa may easily be mistaken, by the inexperienced, for that of a fracture of the tuberosity of the humerus.—Amer. Jour. Surg.

A SOCIETY FOR THE ADVANCEMENT OF CLINICAL STUDY has recently been organized in New York City, the purpose of which is to maintain a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West 43d street, in charge of a special clerk who will be on duty between the hours of nine and six to answer all telephone inquiries (telephone 974 Bryant). The bulletin board will consist of two sections, on one of which will be posted, month by month, the regular clinics, medical and surgical, and also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which as far as possible will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations, and operators or clinicians, an opportunity to obtain the desired end with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York City will be made more accessible to those who may desire to make use of them.

SEBORRHEIC KERATOSIS.—D. W. Montgomery, of San Francisco, reports a case of seborrheic keratosis which is very instructive as regards the etiology of the disease. It supports the view held by many that it is often due to light, especially the actinic ray of sunlight. The patient, aged 56, of fair, fine skin and excellent general health, was an officer of the United States Navy. He had no trouble until from 1883 to 1886, when he was engaged on the Coast Survey and was subjected many hours of the day to direct sunlight and reflected rays from the water while jotting down figures on white paper while on the water in a small boat. It is interesting to note that the affected areas in face and ears were the same regions well known to suffer from the reflected light in snowburn and waterburn. He had suffered previously from rosacea and the front of his face was still seborrheic, but with no keratosis, only freckling from light, which would seem to show that his skin was not predisposed to keratosis and that the long-continued exposure is its cause. Montgomery remarks on the appearance of snowburn, especially in the mountains and glaciers, which is much more severe than waterburn, which in its turn is more severe than ordinary sunburn. There are two factors contributing to this: the light at high altitudes is much richer in actinic rays than in lower altitudes, where they have been filtered out through the atmosphere. In snowburn also the

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rays are reflected and thus aggravate the risk. Another reason still is the greater quantity of light. For prevention of these accidents a covering is often all that is necessary. In the case of his patient a red or yellow handkerchief tied down under the ears and jaws would probably have protected him, and the color of the paper was also of importance. The seborrheic patches are not only disfiguring and disagreeable, but they may be dangerous by degenerating into epithelioma. Montgomery also notices the protection afforded by nature to certain native races living in high altitudes by the deeper red pigmentation as compared to the muddier pigmentation of the inhabitants of lower regions. He mentions as instances that have been observed the native Indians of the high mountain regions of Arizona and the mountaineers of Abyssinia contrasted with the dark Indians of the plains and the negroes of the Soudan.—*Jour. A. M. A.*, Jan. 4, 1913.

PERSISTENT TACHYCARDIA should indicate a search for other evidence of hyperthyroidism. A goiter is not essential to the diagnosis.—*Amer. Jour. Surg.*

STIMULATING REPARATIVE CELL GROWTH.—The researches for which Dr. Alexis Carrel was awarded the Nobel prize have in effect been studies of the life of the cell. Following up the work of Doctor Harrison, who grew cells of the nerve ganglions of the frog in a drop of blood plasma, Doctor Carrel and his associates have apparently demonstrated that life has its possibilities in the individual cell. Pieces of arteries have been removed from animals, kept for months, and successfully grafted on the arteries of other animals. As has already been pointed out in these columns, Doctor Carrel has found it possible to transplant organs such as the kidneys from one animal to another, though the organ thus transplanted eventually lost its functions. A still further step in the study of cellular life has been made by Doctor Carrel, who finds that the growth of the cell may be accelerated by introducing into the medium in which it lies certain tissue extracts.

Five years ago Doctor Carrel undertook a series of studies hoping to demonstrate the possibility of increasing the activity of cell formation so as to lessen the time required for the reparative process in superficial wounds. Find-

ing it impossible to control the conditions in the living animal with sufficient accuracy he began a series of experiments *in vitro*, the results of which are made public in *The Journal of Experimental Medicine* for January, 1913.

In these experiments small fragments of the heart tissue of the chicken were placed in a mixture of blood plasma, water, and extractive from various tissues. The cellular growth of these fragments was compared with the growth of similar fragments in plasma which contained no tissue extract. The tissue extracts were made from chick embryos from six to twenty days old and from the spleen, the kidney, and other organs of adult chickens and from specimens of Rous' chicken sarcoma. It was found that under proper conditions as to temperature, etc., the extracts caused the cells to grow from three times to forty times as rapidly as did the cells immersed in the plasma alone. The extract from embryos was found most active, although the extracts from the spleen and from the Rous sarcoma were nearly as efficient in activating cell growth. Similar studies were made with the dog and with the rabbit. Apparently the results of these experiments point the way toward the acceleration of the reparative processes in wounds. If the stimulation of the cell growth by the tissue extract proves as great in the animal as it has *in vitro*, superficial wounds could be healed in less than twenty-four hours and a broken leg in four or five days.

Unfortunately, however, it was observed that the stimulant effect of the tissue extract is specific, being confined to like animals. The extract from a dog's spleen, for instance, did not stimulate the growth of chicken or rabbit cells. The practical bearing of this observation is of grave importance, indicating that we cannot expect to obtain the best results in the stimulation of reparative growth in man unless we use extracts prepared from the tissues of human beings. It would seem reasonable to hope, however, that tissues from nearly allied animals might produce satisfactory results in stimulating cell growth. No reports are made of any studies along this line, but in view of the remarkable progress which has been made by Doctor Carrel and his associates, it is not too much to expect that probably our first practical result from these studies will be the discovery of some means of accelerating the reparative processes so as materially to cut down the time required for the healing of wounds.—*N. Y. Med. Jour.*

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A CASE OF DIABETES MELLITUS is not being best treated unless frequent estimations of nitrogenous metabolism are made. Only in this way is it possible to determine with a fair degree of accuracy the diet which maintains a nitrogenous balance.—*Amer. Jour. Derm.*

ANCIENT FRENCH FOOD LAWS.—The following edict, relative to the punishment of purveyors of impure food products, is reported to have been discovered by a Parisian antiquary in the archives of Puy-de-Dome.

"Whosoever shall have sold watered milk, in his mouth shall be set a tube, and into the said tube shall be poured the watered milk till the doctor or barber there present shall assert that the culprit cannot swallow more without being put in danger of his days. Whosoever shall have sold butter containing turnips, stones, or any other foreign substance, shall be seized and attached in very curious manner to our pillory of Pontet. Then the said butter shall be placed on his head till the sun shall have melted it completely, and in the meantime the children and the meaner folk of the village shall insult him with such outrageous epithets as shall please them—subject to the respect of God and his majesty. Whosoever shall have sold evil or rotten eggs shall be seized by the body and exposed in our pillory of Pontet. The bad eggs shall be given to the children of the villages, who shall, by way of joyful diversion, throw them in the face of the culprit, so that all may be full of merriment and laughter."

Evidently pure food laws are not solely a product of this day and generation, though the mode of their administration has been somewhat modified with the lapse of time. Apparently such laws were needed also in England, for a British writer of the eighteenth century speaks as follows of food in London in his time:

"The bread I eat in London is a deleterious paste, mixed up with chalk, alum and bone ashes, insipid to the taste and destructive to the constitution. As to the greens, the Londoners are so mad as to boil them with brass half-pence in order to improve their color, and without this improvement in color they have no personal merit.

"Of fish I need say nothing in this hot weather, but that it comes 60, 70, four-score and 100 miles by land carriage, a circumstance sufficient, with-

out any comment, to turn a Dutchman's stomach. This is not the season for oysters, nevertheless it may not be amiss to mention that the right Colchester are kept in slime pots, occasionally overflowed by the sea, and that the green color so much admired by the voluptuaries of this metropolis is occasioned by the vitriolic scum which rises on the surface of the stagnant and stinking water.

"The milk itself should not pass unanalyzed, the produce of faded cabbage leaves and sour draff, lowered with hot water, frothed with bruised snails, carried through the streets in open pails, exposed to overflows from mud carts, splatterings from coach wheels. * * *

"There is also the tallowy rancid mass called butter manufactured with candle grease and kitchen stuff; and their fresh eggs imported from France and Scotland.

"If I would drink water I must quaff the mawkish contents of an open aqueduct, exposed to all manner of defilement, or swallow that which comes from the River Thames, impregnated with all the filth of London and Westminster, such as the drugs, minerals and poisons used in mechanics and manufactures, enriched with the putrifying carcasses of beasts and men."—*Boston Med. and Surg. Jour.*

SIMPLE PERFORATION OF THE UTERUS during a curettage in an aseptic field requires no further treatment than a packing of gauze in the uterus.—*Amer. Jour. Surg.*

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A CHRONIC SUPPURATION in the middle ear may be due entirely to an adhesion near the floor and internal wall, forming a pocket in which pus may lodge.—Amer. Jour. Surg.

ORIGIN OF SYPHILIS.—At the time when syphilis began to be recognized as a separate disease the old-time writers tried to outdo each other in inventing weird explanations accounting for its origin. We all remember the old tale related by one writer of unscrupulous camp followers who in a time of great scarcity of rations offered famishing soldiers steaming dishes in which spices and culinary ingenuity had disguised the interesting fact that the flesh of dead soldiers had made such dishes possible. This writer attempts to prove that the outbreak of a horrible disease which soon thereafter made its appearance among those who had participated in these meals was due entirely to the consumption of human flesh, his conclusion being that syphilis would originate *ed novo* among persons who wittingly or otherwise engaged in cannibal feasts. Upon the publication of this unique theory another writer, to find how much truth lay in it, resorted to certain experiments which evidently convinced him of the accuracy of the original observations. The latter—Fioravanti was the inquiring man's name—put a sow on a diet almost exclusively composed of swine's flesh, and after a short period on this sort of food the beast began to shed her bristles and hair and become covered with pustules. To add further confirmation to his findings, Fioravanti then fed a dog nothing but flesh of his own kind, and this animal, like the sow, also became full of pains and pustules and lost its hair. From these experiments Fioravanti became convinced that if a representative of one species was nourished exclusively with the flesh of its own kind it would inevitably become afflicted with syphilis, the disease possessing the peculiar property of arising through this cause.

Another curious explanation of the origin of syphilis is offered by Caesalpinus. He would have it that just before evacuating the town of Suma near Mount Vesuvius the Spanish soldiery drew leprous blood from the inmates of the town's lazaretto, with which they poisoned a vast quantity of wine left behind, shrewdly guessing that the French would make use of it in their riotous celebration of victory. Nor were they disappointed, for our writer tells us that just as was anticipated, the victorious army immediately upon taking the town began a carousal on the supply of poisoned wine. Ere long they were seized with a horrible disorder bearing a close resemblance to elephantiasis, but which Caesalpinus believes was the disease later to become known to the world as syphilis.

However absurd these theories as to the origin of syphilis may be, yet it was soon recognized by

all that the disease was given its widest spread by impure sexual relations, and that the protestations of an infected person who denied illicit connection might justly be scoffed at. In line with this, it is interesting to read of the satirical remarks addressed by Fallopius to several syphilitic ladies who vowed that their disease had followed the application of contaminated holy water, stoutly contending that no other mode of infection was possible. Fallopius answers these women by telling them that he who believes such a yarn would also believe that a woman has gotten with child by bathing in water in which "some wicked man had spent his seed."—Amer. Jour. Derm.

IRRIGATING THE THROAT with ice water from a fountain syringe will frequently relieve the congestion and give great comfort in cases of acute follicular tonsillitis.—Amer. Jour. Surg.

COSMETICS IN CHILDHOOD.—G. Norman Meachen writes that in the case of oily and greasy scalps, shampooing must be rather more frequent, and Hebra's well-known soap-spirit may be advantageously employed. Afterwards a spirituous lotion may be rubbed and brushed into the head. *Euresol* and tannobromine are valuable remedies for this purpose, though their employment carries us more into the sphere of dermatological medicine rather than cosmetics. The treatment of baldness does not come within the scope of this paper, though it must be remembered that the prevention of seborrhoea may save the hair from falling. A useful hair wash containing both oil and spirit is the following, the ingredients of which may be varied in quantity according as to which type of local condition prevails:

R	Euresol Pro Cap.	.....grn. x
	Ol. Ricini	.....5ij
	Tinct. Canthar	.....5j
	Spt. Lavand.	.....
	Rosmarini	.....ad 5j

Misce.

Careful combing of the hair is essential and in the case of girls this must be done morning and night. Loose plaiting is preferable to tight curling. Singeing of the hair is a barbarous procedure, utterly without rhyme or reason, and the practice should never be permitted. Hair dyes are seldom or never required in the case of children.—Amer. Journ. Derm., Oct., 1912.

DON'T URGE the radical operation for frontal sinusitis unless the symptoms are severe or conservative efforts have failed; the operation is disfiguring and the results are not always satisfactory.—Amer. Jour. Surg.

THE "PENNY SIGNS" IN PLEURISY AND ASCITES.—M. Brelet, of Paris, in the "Medical Press and Circular," calls attention to the fact that several years ago Professor Pitres, of Bordeaux, pointed out a new sign in pleurisy with effusion, based on the transmission of the sound obtained by tapping one coin on another, which he termed the *signe du sou*. Dr. Janney has taken up the matter *de novo*, and makes it clear that Pitres' sign is often of the greatest assistance in the diagnosis of pleural effusion. He also extends the usefulness of this sign to the detection of ascites. To elicit Pitres' sign in a case of pleurisy with effusion, a coin is placed flat on the chest, in front, just below the nipple, and an assistant taps it with another coin striking vertically. While this is being done the ob-

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server listens over the back and side of the thorax. If the interior of the thoracic cavity be occupied by a homogeneous medium, either solid or liquid, which conducts sound more perfectly than normal pulmonary tissue, the percussion sound is a clear, ringing, silvery vibration. The laws of the transmission of sound are, of course, the same in the abdomen as in the thorax, so that Lesieur and Rebattu have extended its use to the diagnosis of the presence of ascitic fluid in the peritoneum. The patient lies on his back and a pillow is placed under the pelvis. Then in order to ascertain the mobility of the fluid the patient is made to turn on his side or to sit up. An assistant applies a coin over the abdominal wall in the lumbar region or the iliac fossa, which he holds firmly between his two fingers. With the other coin in his right hand he taps perpendicularly on the coin, graduating the shock to the thickness of tissue to be penetrated, beginning gently and steadily increasing in strength. During this time the observer applies his stethoscope over the abdomen at a spot exactly opposite to the position of the coin. The limit of the effusion can be determined by changing the relative position of the coin and the stethoscope.

The penny sign is not pathognomonic of pleural effusion, but as massive indurations of the pulmonary parenchyma are much more uncommon than pleural effusions, this sign, taken in conjunction with the more or less complete series of other signs and symptoms, indicates the existence of effusion into the pleural cavity. Neither is the "penny sign" pathognomonic of ascites; it merely shows the presence in the abdomen of a homogeneous medium, either liquid or solid, in an uninterrupted layer. Therefore, when the sign is positive we still have to differentiate as-

cites from fibroid or pregnancy and, as a rule, this can be done by noting that in the first case, in order to obtain the silvery tone, we have to percuss in the lower parts of the abdomen, whereas, in fibroma, or pregnancy, the sign is perceived when percussing over the epigastrium. —American Practitioner.

UNDERGROUND TRAVELING IN LONDON.—Underground traveling in London is objected to by many because the air is impure and often stifling. What promises to be an evolution in this particular is a plan recently announced by the Central London Railway Company, by which a system of ventilation, capable of pumping daily 80,000,000 cubic feet of ozonized air into its tube station and tunnels will be installed. One plant is already in operation; and it is hoped similar ones will soon be completed at every station along the line. The plant at each station should pump 50,000 cubic feet of air an hour into the station, or at the rate of 900 cubic feet a person an hour. The ordinary allowance in buildings is about 300 cubic feet of fresh air a person. The air is drawn from outside through a filter screen, which removes dust, dirt and impure gases. A part of the air is then highly ozonized by being passed over highly electrified plates, the proportion of ozone to the whole being one part in 10,000,000. The air is driven by fans to the level of the station; and two-thirds of it is distributed over the platform by ducts, with outlets at a height of seven feet above the platform. The remainder is driven into the tunnel. The size of the pumping plant is such that it can be installed in a chamber 10x8x4 feet; and there are two miles of ductwork.—American Practitioner.

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SPARTEINE SULPHATE

By W. C. Wolverton, M.D., of Badger, Iowa

SPARTEINE is a colorless, volatile, liquid alkaloid, derived from the tops of *Cytisus scoparius*, the common broom-corn. The best-known salt of Sparteine is the sulphate, and it is the only one obtainable on the market; it is slightly deliquescent, but retains its crystalline form indefinitely if kept in well stoppered bottles. It is freely soluble in both alcohol and water, and may be administered either per os or hypodermically.

Sparteine is a remedy of very great value in its own particular field, namely in cardiac and nephritic conditions, its action being quite analogous to that of digitalis; but it has fallen into disrepute and disuse for the simple reason that it is very rarely used in dosage sufficient to produce the desired therapeutic effect. The makers of hypodermatic tablets and triturations are largely responsible for this state of affairs. Hypodermatic tablets have until recently contained but $\frac{1}{10}$ to $\frac{1}{30}$ grain; they may now be obtained in $\frac{1}{10}$ grain size, but even this dose is quite useless except in the case of young children. The largest dose the writer has seen in tablet trituration was $\frac{1}{4}$ grain, much too small a dose for oral administration.

Shoemaker gives the dose of Sparteine sulphate as grn. $\frac{1}{4}$ to $\frac{1}{2}$, by hypo, and grn. ss to ij, or more, per os. Clarke observed no evil results following the administration of as much as grn. xij in 24 hours; there was no cumulative effect when the remedy

was given continuously over a period of several months. Hare states that for oral administration the dose should be $\frac{1}{4}$ grn., increased *ad effectum*, the interval between doses being 2 hours. Hare says that Potts achieved favorable results in diseases characterized by tremor, as paralysis agitans, from doses of grn. $\frac{1}{4}$ to $\frac{1}{2}$, t.i.d. Schleif, in his "Materia Medica and Therapeutics," puts the dose at $\frac{1}{4}$ to $\frac{1}{2}$ grn.; or grn. ij in divided dosage, in 24 hours. Merck's Manual gives the same dosage as that of Hare and Schleif. Abbott states the dose as grn. $\frac{1}{6}$ to $\frac{1}{2}$, by hypo, and grn. j to ij, per os, administered q.3 vel 4 h., p.r.n. Waugh gives grn. $\frac{1}{6}$ to j, 3 or 4 times daily. Lanphear, in his "Surgical Therapeutics," places the dose at grn. j to ij, (presumably by the hypodermatic route), q.3 vel 4 h., as productive of results in postoperative anuria. Prof. Bartholow many years ago stated the dose to be grn. ss to ij.—Duane's Medical Dictionary gives it as grn. ss to jv. Pettey, of Memphis, in a masterly paper published in the July number of the "American Journal of Surgery," states that after much experimentation with doses of every size, ranging from a small fraction of a grain up to grn. 3, he has found that a dose of grn. jss to ij, at 2 to 3 hour intervals, is productive of the best results.

It has been a matter of considerable interest to the writer to note, in looking over the literature, that the men who are really sure that sparteine has certainly produced desired therapeutic results in their hands are the ones, like Shoemaker, Bartholow, Lanphear and Pettey, who

have used the drug in *large* dose. One might be pardoned for digressing at this point long enough to remark that "therapeutic nihilists" are physicians, so-called, who condemn many a really valuable remedy as worthless after a half-hearted trial or two, using it in woefully insufficient dosage. This is well illustrated in the case of sparteine; the men who have been using it in dose of grn. j to iij have been getting results, and rank it among our most useful remedies, like calomel, quinine, strychnia and morphine; while those who would relegate it to obscurity admit having used a dose of only grn. $\frac{1}{30}$ to $\frac{1}{4}$.

Physiological Action:—(a) Sparteine acts upon the nervous system very decidedly when given in large doses, depressing the brain and spinal cord, chiefly in the motor pathways, thereby causing a decrease of reflex action and motor power, ending in complete paralysis when lethal doses are used. Cushny says it acts like cicutine upon the peripheral nerve-ends, paralyzing them, the central nervous system being but little affected. (b) Upon the circulation sparteine acts as a stimulant; there is a primary quickening of the pulse-rate and a slight rise in blood-pressure; this is followed by a slowing of the rate of contraction and a fall in arterial tension; the force of ventricular contraction is increased. We have, then, a slowing and strengthening of the ventricular contraction, with a *lowering* of the blood-pressure (this latter phenomenon being ascribed to action on the vasomotor nervous mechanism, causing a dilatation of the peripheral vessels). This picture is quite different from that of digitalis, which slows and strengthens the heart-beat, but produces a *sustained rise* in the blood-pressure. (c) Small doses do not affect the respiration, but toxic doses kill by paralysis of the respiratory center. Cushny says, on the other hand, that death is due to paralysis of the terminations of the phrenic nerves in the diaphragm.

Therapeutics.—Sparteine is a true and reliable heart-tonic and stimulant, and an excellent non-irritating diuretic, admirably replacing digitalis, and many times succeeding where the latter fails. Sparteine is free from the objectionable blood-pressure-raising properties of digitalis, thus permitting of the use of sparteine in aged patients with arteriosclerosis and atheroma, where digitalis is barred. Nor does sparteine cause gastrointestinal irritation, a symptom which often makes the discontinuance of digitalis imperative; on the other hand, sparteine is a bitter stomachic and improves the appetite.

All authorities agree that it is of value in cardiac arrhythmia. In mitral disease, and in weak and irregular heart-action, according to Abbott, it is a good remedy, and acts quickly. The same author states that it is the remedy of choice in "tobacco-heart," for the tachycardia of Graves' disease, and in the "rheumatic heart"; it is also useful in cardiac dropsy; he also claims that it promptly and strongly reduces the size of the dilated heart.

Hare states that the decoction of scoparius has been called "one of the most efficient diuretics in cardiac dropsy," when given in dose of $\frac{1}{2}$ j, q. 3 h.; this, he says applies equally well to sparteine sulphate. It has also given good results in the anasarca of chronic nephritis; and has been successfully employed in scarlatinal nephritis.

Schleif says this remedy has been satisfactorily employed in valvular disease, in (cardiac) asthma, and in conditions characterized by cardiac depression, with dropsy; but that it seems particularly adapted to the functional or nervous disorders of the heart. He states that it has been recommended in exophthalmic goiter, and that it may do good.

Shoemaker credits sparteine with being a true diuretic, increasing both the urea and urinary water, being more rapid in its action than digitalis, and without the cumulative action of the latter. In cardiac affections, he says it is particularly valuable in disease of the mitral valve, especially when digitalis is contraindicated or has failed; in advanced stages of this disease, when failure of compensation has begun, marked relief follows its exhibition. Also, that it is of value in dyspnea, palpitation, and cardiac debility arising from an excessive deposit of fat around the heart. It is beneficial in functional diseases of the heart, caused by excessive bodily or mental effort, anxiety, etc.; and has proved useful in treating "tobacco heart." Shoemaker states that it increases the elimination of urea, and consequently is beneficial in chronic parenchymatous nephritis, averting impending uremia.

Germain See, Garand, Roland, Voit, Clarke, Kurloff and Pawinski are all in accord in affirming sparteine to be of value in the treatment of cardiac affections, in which it slows the pulse and renders it stronger and more regular, increases diuresis, and is superior to other cardiac remedies in its power of controlling general nervous excitement. They state that it is rapid in action, the symptoms produced by it developing in from 30 minutes to one

hour after its ingestion, and continuing for 5 or 6 hours.

Sparteine has been commended for its action in angina pectoris; in chorea with endocarditis; in rheumatic heart-diseases; for the withdrawal symptoms following the stoppage of morphine; as a preliminary to chloroform anesthesia, in patients with weak or diseased hearts; and to regulate the disturbed heart-action of young tubercular patients.

Lanphear says that in the treatment of postoperative anuria, sparteine sulphate, in doses of grn. j to ij, q. 3 vel 4 h., has been found most useful; in conjunction with it, a liter of physiologic saline solution should be administered by hypodermococlysis, and repeated in 3 or 4 hours. MacNider states that following surgical procedures, where the amount of urine is greatly reduced, or where anuria has developed as a result of low general arterial tension, the amount of urine may be increased and the anuria relieved, through the action of sparteine on the general blood-pressure, and indirectly on the local kidney-pressure, raising the latter, and rendering the kidney functionally more active.

Lanphear also recommends that where the hyoscine-morphine combination is used prior to the administration of a volatile general anesthetic, sparteine, in large dose, as heretofore recommended by him, be administered simultaneously with the hyoscine-morphine. Pettey says this measure is of great value in preventing shock and post-anesthetic nausea; that its power to sustain the heart during the anesthesia reduces shock greatly if it does not entirely prevent it. If shock is avoided, post-anesthetic nausea rarely occurs, provided the intestinal canal has been properly emptied prior to the administration of the anesthetic. Pettey insists that the administration of sparteine after operation is also beneficial, ensuring a more uniform and efficient circulation, especially a better capillary circulation, and this tends to promote primary union.

In the treatment of narcotic drug-addictions, Pettey has found sparteine invaluable, being superior to digitalis, strychnia or strophanthus, in supporting the heart after the rapid or immediate withdrawal of the narcotic.

He believes that it is in *pneumonia*, especially, that it finds a place that no other remedy or combination of remedies fills equally well. Here we have to deal with an overworked right heart, and a pulmonary and venous congestion; and death usually results from heart exhaus-

tion and CO₂ poisoning. Sparteine counteracts the development of this condition better, and does more to overcome it after it has fully developed, than any other remedy with which he is familiar.

An interesting case occurred in the practice of the writer a few months ago. In the afternoon of July 27, 1912, a male infant was born, at full term, and was apparently normal in every way. The nurse was directed to give the baby warm water every 2 hours. The parents wished to have the child circumcised, and this was accordingly done, 24 hours after birth. No urine had been voided, up to this time. On the 28th, 48 hours after birth, the anuria still persisted, so Sp. Aetheris Nitrosi, in 4-drop doses, well diluted with water, was administered every 3 hours, but without results. The child was now beginning to show symptoms of uremia. Hot wet packs were then applied over the renal region, continuously throughout the night and following morning; and physiologic saline solution was administered per rectum. At the end of 66 hours no urine had been voided. A small bougie passed into the bladder demonstrated that there was no urine present. The baby was by this time having frequent uremic convulsions, moving him ever so slightly being sufficient to bring on a seizure. A few days before, the writer had read Dr. Pettey's paper in the "American Journal of Surgery," and now, as a "last resort," resolved to give sparteine a clinical trial; accordingly, $\frac{1}{8}$ grain of the sulphate was administered hypodermically, at 8:30 A.M.; at 11:30 A. M. a second injection of $\frac{1}{10}$ grn. was given. At 2:30 P.M., just 72 hours after birth, the infant voided his first urine; and at 3:25, 4:00 and 5:40 P.M. urine was freely passed. A third and last dose of $\frac{1}{1}$ grn. of sparteine sulphate was given at 4:00 P.M. Urine was voided twice during the ensuing night, and from that time on occurred at normal intervals.

It might be argued, in this case, that Nature had finally established the secretion of urine, and that the latter would have been voided at the time it did take place, even though the sparteine had not been used. But when a true anuria had persisted for 66 hours, as was shown by the empty bladder, at the expiration of the time, after all ordinary and extraordinary measures had been faithfully carried out almost from the beginning, the writer feels positive that without sparteine an *exitus e vita* would soon have occurred.

In conclusion, the writer wishes to emphasize the following points:

1. Sparteine, when administered in sufficient dosage, is our most reliable heart stimulant.

2. It is at least as efficient as digitalis, having none of the evil by-effects of the latter, as cumulative action and gastrointestinal irritation. Moreover, it can be used with safety in those cases where digitalis is contraindicated because of the excessive intra-arterial tension occasioned by the latter. In many cases in which digitalis has failed to provoke a favorable response, sparteine has achieved the desired result.

3. Sparteine is a reliable, quick-acting, non-irritating diuretic, increasing the secretion both of urinary solids and of water. It is the remedy *par excellence* in oliguria and anuria, being valuable both as a prophylactic and curative agent following operative procedures.

4. Unlike many other potent remedies, the cost of sparteine sulphate is not prohibitive, its cost being very low.

5. If one is to confidently expect results from the administration of sparteine sulphate, it must be given in adult dosage of *one or two grains*, repeated at intervals of from 2 to 6 hours, p.r.n. In urgent cases, it is best to give grn. ij, hypodermatically, and repeat in 2 hours; then at intervals of 3, 4 or 6 hours, as resulting symptoms may dictate.

PULMONARY TUBERCULOSIS: A WORD ABOUT ITS TREATMENT*

By Beverley Robinson, M.D., of New York

ONLY yesterday, I went the rounds at Bellevue Hospital, with one of the best diagnosticians of New York. With him were several younger men of great talent and enthusiasm, making use in the best way of all the most approved physical methods of examination. This was particularly true in one case which I have now specially in mind. It was that of a young man suspected to have pulmonary tuberculosis. As yet, the diagnosis could not be absolutely affirmed. The signs and symptoms were not sufficiently evident to justify it. Sooner, or later, they will be—or happily, the patient may be restored to health and vigor. At present, according to the attending physician and his house staff, the best is being done that can be for the patient.

Did I, the old practitioner, gainsay it somewhat? I *did*. If I had the management of the case, already I would have instituted the treatment, preventive and

curative, in which I believe absolutely, as the very best and simplest now known to the profession.

It consists merely as I have time and again reiterated—by pen and word of mouth, for many years—in giving internally, in small repeated doses beechwood creosote and in using continuous antiseptic inhalations, also with creosote, and by means of the perforated zinc inhaler.

The treatment must be used with intelligence and persistently during many months. Internally the best formula is:

Beechwood creosote (Merck's), 6 drops; glycerin, 1 ounce; rye whiskey, 2 ounces. Dose, one dessertspoonful every two, three or four hours, best diluted with a little water.

The best formula for inhalation is: equal parts of beechwood creosote (Merck's), alcohol, and spirit of chloroform. Use ten drops on the sponge of a perforated zinc inhaler. Repeat a few drops as required. The inhaler should be used frequently; at first for a few moments each time; later (after a week or more) it may be used half an hour or an hour at a time. Finally, it may be used almost continuously during the day and frequently all night, without interfering with sleep. Occasionally it is necessary to lessen the proportion of creosote, in the inhaling formula at least, for a while, and until the patient is accustomed to the use of the inhaler.

As an addendum of the most conclusive sort, I would urgently request the reading of Dr. D. B. Lees' Bradshaw lecture in London Lancet, of November 9, 1912, and in the same journal, November 23, 1912, Prof. Charles Ruata's letter confirmatory of all that I and Dr. Lees have stated. I quote textually, from Dr. Lees and Professor Perugia. Prof. P. writes: "This treatment of continuous inhalations is quite familiar here in Italy, and I think that at this moment while I am writing perhaps not less than 5,000 patients are using it." "Now about the 'cure.' I am quite confident in asserting after an experience of 30 years, during which I have treated more than 2,000 consumptives, and seen treated many and many more, that when the tuberculosis is simply bacillary the 'cure' is certain." "For this second stage, the stage of septicemia, it is as certain as for the first stage that we obtain a perfect and constant cure, when the lesions of the lungs are not so formidable as to render the treatment impossible." "But even then we obtain a transient improvement." (p. 1463.)

*Critic and Guide, Jan., 1913.

Dr. Lees writes: "During the last 30 years the method of treatment thus initiated has been adopted with success by a few physicians, among whom special mention must be made of Dr. Beverley Robinson, of New York, who has followed the recommendations of Dr. Yeo, and made use of similar solutions for inhalation for many years. He has published numerous papers on the subject, in which he has given evidence of the value of this method of treatment in cases of phthisis and especially in laryngeal tuberculosis." (p. 1288.)

In conclusion Dr. Lees writes: "If every practitioner of medicine learned how to diagnose accurately at a very early stage the fact of incipient pulmonary tuberculosis, and treated it at once according to the method which I have described, it is quite certain that a very large diminution in the mortality from pulmonary tuberculosis could be effected in a very few years, and it would not be too much to hope that when the attention of the profession everywhere had been thoroughly aroused and the intelligent co-operation of all medical men completely secured, we might even see the dawn of a day when the disease formerly known as pulmonary phthisis had become a thing of the past. May that day come soon!"

VANADIUM SELENIUM IN CANCER*

Its Histological Effect

By Felix von Oefele, M.D., of New York†

Of the different tumors, sarcoma and the carcinoma we call malignant. Especially for carcinoma we state that selenium compounds are a specific treatment. In sarcoma the selenium must be combined with other active agents.

The basis of this selenium treatment is a chemical action of selenium as an oxidizer; especially in carcinoma selenium increases the oxidation of sulphur compounds. But beside this chemical action everybody wishes to know the histological effect of selenium on carcinoma. The histological results of selenium on the tumor I shall explain.¹

In practical medicine typical tumors are very rare. Mostly a real tumor has the main characters of a certain kind and partakes slightly, in some ways, of the character of other kinds of tumors. We will not, because we cannot explain whence this intermediate character mostly comes. But it is a fact, that an intermediate tumor, partly

of malignant and partly of benign character, can either grow more malignant or more benign. It is bad, obviously, if a tumor become more and more malignant in character. The intention of therapeutics should be to change a malignant tumor into a benign one, if possible, and this is exactly what selenium does.

A sarcoma is a malignant tumor, a conglomeration of embryonic cells in a histological as well as a chemical sense. In a carcinoma about the same kind of cells are placed in crypts, the intervening places are filled by connective tissues, and it has the appearance of a pseudogland. Sarcoma and carcinoma make sprouts in the neighboring tissue, just as a plant grows.

A demarginated fibroma is exactly a contrary kind of benign tumor. But very often we find in practical cases a fibrosarcoma or a fibrocarcinoma. As above stated, it becomes worse, if the sarcoma or the carcinoma tissues increase, and it improves if the fibroma characteristics overpower the malignant characteristics.

In cases of carcinoma and sarcoma cure by selenium compound, it is impossible to cut out at certain times pieces of the tumor and to make a series of histological observations on the selenium influence on the tumor tissue. It is only occasionally that we get specimens of both the earlier state of the tumor and of the treated tumor. The best opportunity came in a case where the original tumor and recidives were operated on. Later on, the recidive was treated by selenium compound. After some weeks of the selenium treatment, pains occurred from the pressure of scars on nerve trunks. A part of the tumor was again taken out. We have some other occasional observations on treated patients.

It would go too far to give, point by point, the results of these examinations and to show how these points form a mosaic picture of conclusions, which are not yet without missing parts. But sometimes we can restore these parts. To such restoration the conclusions of Professor Wassermann on mice tumors are very valuable.

Our impression of selenium action is this: The selenium affects particularly the crypt cells of carcinoma, which I shall call the parenchyma. These cells become, by selenium treatment, colloidal. The parenchyma swells up from place to place and becomes degenerated. The colloidal detritus of these degenerated parenchyma cells becomes more and more resorbed and new connective tissue replaces the crypts, increasing the stroma: In a later state this connective tissue retracts. The tumor does not spread

*N. Y. Med. Jour., Jan. 11, 1913.

†See my letter on this subject, *Medical Record*, June 22, 1912.

¹My observations have been mainly of the action of vanadium selenide, Va_2Se_3 (selenium compound) prepared under my direction; I have also prepared Va_2Se_2 and Va_2Se_3 .

further over the boundary line after the selenium treatment. The tumor becomes, therefore, more and more of the demarginated character of fibroma. And this fibroma can contract more and more in the character of a scar.

But the tumor will not absolutely disappear by the selenium compound treatment. This furnishes some practical instructions for the selenium compound treatment in cancer cases. If in cancer cases a radical operation is possible, this radical operation should be done. But the success of this operation should be improved by subsequent selenium compound treatment, because this treatment will prevent recidives and metastases. In the second case it will be possible to have an operation, although not a radical one. In these cases the operation can be done and the residue of the operated tumor can be treated, internally and locally, by selenium compound. In the third case the malignant tumor is no longer operable. In this case the selenium treatment is absolutely necessary. If the condition of this patient and of the tumor is improved, an operation can be done later on. An operation is not indicated in the state of colloidal degeneration of the parenchyma and soft swelling of the tumor. But it seems that in the state of fibroid retraction of the tumor an operation will be very often necessary.

Some irritations are always there by a hard, fibroid scar. And the feeling of the patient can be improved by cutting out this hard tumor. If before the cancer was inoperable, the transformation into a fibroma gives to the surgeon the opportunity to do a new and useful operation, whereas the surgeon was before useless, and could not operate. This is what some selenium compounds can accomplish in cancer cases.

326 East Fifty-eighth Street.

TREATMENT OF BURNS*

By R. J. Griffin, M. D., Moundville, Ala.

HAVING recently had under my observation and treatment a few cases of very severe burns, and realizing their frequent occurrence in railway accidents and the close relation they bear to railway surgery; and having seen very forcefully the deleterious effect of extensive burns on the kidney, I thought I would endeavor to warn my brother physicians against this dangerous complication or sequela.

What I shall say will be intensely practical and along the line of my personal observation.

In the treatment of burns, and especially very extensive ones of the third degree, you have first to overcome shock. (You will note that for the sake of brevity I mention only three degrees of burns, first, second and third, including in the third all that destroy the true skin and are not included in those of the second degree.)

Then you will have three indications for local treatment—the relief of pain, protection of the injured but living tissues, and the drainage of any pus pockets that may later form under the sloughs.

In regard to shock its definition is not definite, since the factors concerned in its causation are not altogether understood. We know it to be a condition of depression. Physiologists teach that there are two kinds of shock, vasomotor and cardiac. They regard it as primarily a nervous condition. They tell us that shock is that phenomenon of depression or suppression of nervous functions which follows mechanical injury along the course of nerves. Pathologists tell us that post-mortem examinations are negative, either macroscopically or microscopically, but their investigations reveal much blood in the large abdominal veins and splanchnic system. In extensive burns the shock is intense, due to severe pain and the effect on the nervous system. The patient is found to present a clinical picture somewhat ghastly in appearance, seems dull and stupid, and not delirious, quiet—not nervous; the skin and mucous membranes are pale; the skin cold and clammy; the temperature subnormal, the reflexes diminished or absent; respiration shallow; the pulse rapid and small, and the sphygmomanometer always registers a diminished blood pressure.

Treatment. The treatment of shock in cases of burns is similar to that in other conditions. We know that a great many patients die from shock in very extensive burns, especially where it lasts from twenty-four to forty-eight hours. Realizing that you have to deal with an inward flow of blood to the large abdominal veins, you must by all means apply *heat* externally to all parts of the body, as by hot water bottles, etc. You should give cardiac stimulants, and gradually raise the blood pressure and sustain the heart action. In these cases I favor good-sized doses of morphine and atropine, given hypodermatically, both for their stimulating effect and to relieve pain. Adrenaline chloride, in 10-drop doses of the 1 to 1000 solution, hypodermatically, strychnia, nitroglycerin and cam-

* Read before the Assn. of Surgeons of Southern Railway International Jour. Surg., Nov. 1912.

phor are beneficial in large doses, but not often repeated. What we desire, is to raise the blood pressure and maintain it; but by all means avoid overstimulation.

Now, when you have succeeded in tiding your patient over the shock which you can see by the gradual rise in temperature and slowly returning normal pulse, color, respiration, etc., your troubles and his are just beginning. If the case is only one of a burn of the first degree, the treatment consists principally in the relief of pain, which you can generally accomplish with a weak non-alcoholic solution of picric acid of the strength of one-half to one grain to the ounce of water. A few applications of this and possibly a little cold cream or carbolized vaseline and your patient is well.

If the burn is of the second degree and much of the epidermis is destroyed, there will be blisters, either full of serum or collapsed, some oozing of serum and possibly of blood. In these cases the pain is severe, and repair is much slower, but no slough of the true skin occurs; therefore, there is no permanent scar; redness may, however, persist for a month or more.

The treatment of burns of the second degree is chiefly to relieve pain and prevent infection. The various writers give us four methods of treatment: First, to apply a dressing soaked with oil or spread with ointment in order to protect the injured surface from air and changes in temperature. Second, to cover the burn with strips of rubber tissue or gauze wet with normal saline solution. Third, to apply antiseptic dressings which may be allowed to dry or may be kept moist. Fourth, to leave the affected area exposed to the air in order that it may dry up.

I think it depends upon the condition of the burn as to which plan of dressing is best. If there is a tendency to marked sloughing and watery secretions, I think the dry open air dressing preferable. I like first to wash the parts in a warm normal salt solution, or if there is much pus I use a weak solution of hydrogen peroxide in normal saline; then dust on an antiseptic powder. I use bismuth subnitrate, one part, and powdered charcoal, 10 parts, as a dusting powder and leave the burn open to the air. Protection against infection depends upon the vitality of the remaining skin rather than upon the antiseptic qualities of the dressing; therefore the powder should be soothing to the skin, rather than destructive to the bacteria.

Picric acid solutions are recommended in the treatment of burns of the second de-

gree (in fact, by some in all degrees of burns). They are used both to relieve pain and as an antiseptic, also to dry up the parts; but, in my own experience, I find them very painful in some cases, while soothing in others.

This brings us to burns of the third degree, and in this class I have included all the deeper burns. In most of these, when extensive, you will find areas where the burn is of the first and second degrees; you can easily be misled by the early appearance of the skin. If the vitality of the corium is destroyed, the blood can not circulate through its vessels and the skin will therefore appear white. The difference between this and normal skin is easily recognized if one looks for changes in color when pressure is made upon it. Such changes will always be absent in dead skin, and furthermore this dead area will always be surrounded by a hyperemic zone in which the burn is only of the second degree; all of this white area will in time slough, and the deeper the burn, the longer the time, as a rule, required for it to slough. In some instances it requires two weeks or even longer.

Sloughs should be cut away as soon as possible after they become loose, but not before. In large areas incisions should be made in the central portions of the slough to permit of free escape of pus and secretions. The repair after a burn of the first or second degree is accomplished by a normal growth of epidermis, but in every burn of the third degree the removal of the slough is accomplished by the growth of granulations beneath them. These granulating areas must be covered by the *lateral* growth of the epithelial cells, either from the edge of uninjured skin, or from islands of epithelium which have been left, or from the epithelium which lines the sebaceous and sweat glands. Thus you see the process of making new skin is very slow; an epithelial edge will grow about one-eighth of an inch a week. All very large surfaces after the removal of all sloughs, if there is a healthy granulating area, should be skin-grafted; but this operation will not be discussed in my paper. Frequent changes of dressings are to be avoided, but if they become saturated with pus and serum, the comfort of the patient is usually promoted by changing them.

Support your patients with the best of foods and fresh air, and make them as comfortable as possible. Here is where your soothing antiseptic powders and open-air dressings are most suitable, for it will

require *months* for large surfaces, healing only from the edges, to become covered with healthy epithelium.

Always be on the alert for symptoms of infection. The kidney is the main organ to suffer from extensive burns, and I regard this sequela or complication as almost always fatal. Watch for a low specific gravity of the urine and make frequent tests for albumen. I think it a good plan to give twice a week small doses of the mild chloride of mercury, and follow this with salines, also urotropin twice daily as a prophylactic, and help the kidneys to throw off as much solids as possible.

I remember painfully, and to my great sorrow, that on last Thanksgiving Day, November 30th, my own son, six years and three months old, was burned over one-half of his body and legs; nearly all in the third degree and deeper. The shock lasted almost forty-eight hours; some of the sloughs required two weeks to become detached. A great many of my medical friends came to my assistance and offered every suggestion possible, but none could offer a favorable prognosis; however, he lingered for over two months, improving gradually so far as the burn was concerned. Epithelium was growing rapidly on all edges, and his appetite and strength were remarkable, until finally his kidneys began to show the effects of the poison. His urine became loaded with albumen, the specific gravity fell as low as 1003 or 1004, and there was great diminution in the quantity of urine, until finally for five days prior to his death he did not void any at all. In my mind there is no doubt but my son would have recovered, although such an extensive area was involved, had it not been for the involvement of his kidneys.

PRURITUS VULVAE *

By Arthur Stein, M. D.

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PRURITUS vulvae has always taxed the patience and ingenuity of the physician. Antidotes innumerable have been suggested, prescribed, used and discarded for centuries for this unpleasant and little understood affection. The fact that a host of remedies and all manner of explanations have been proffered to elucidate the phenomenon should be a sufficient excuse for this renewed attempt at discussing the question.

By pruritus vulvae we mean the sensation of itching of the external female genitals, which may amount to a serious

disease. It may occur in paroxysms and drive a patient to despair. With some women it occurs preferably at night or just shortly after they have gone to bed and the persistent disturbance of rest may lead to serious injury to the nervous system. The sensation that women experience may be summarized in this way that in the early stages of the affection a burning feeling predominates, alternating with itching and that, as the trouble runs its course itching is in the ascendency and finally holds exclusive sway.

As to etiology the greatest variety of causative factors have to be considered. I can do not better, than follow the classification suggested by Dudley, who divides the same as follows:

1. Circulatory causes (icterus, diabetes, chronic nephritis, morphine, alcohol and iodoform).

2. Secretory causes, such as abnormal secretions of the uterus and vagina, especially in conjunction with the affection enumerated under heading No. 1. In connection therewith may be mentioned gonorrhea and intravaginal pessaries;

3. Parasitic causes such as pediculi, ascaroids, leptothrith oidium, etc.

4. Mechanical causes: Masturbation, immoderate handling and scratching.

5. Thermal causes.

This division includes practically all the points which may lead to pruritus vulvae.

The effect which all these causes may have upon the external female genitals is alike, and as mentioned before, chiefly consists in an uninterrupted sensation of burning and itching which may make itself unpleasantly felt at any time, usually after physical exertions or after going to bed which is caused by the parts having become warm. Consequently patients are compelled to scratch themselves. This may become so irresistible that a woman may be compelled to retire to do so. It is perfectly clear that this condition must have a serious effect upon the nervous system; the patients are unable to sleep, become highly irritable and in advanced cases, they even think of suicide.

It is a veritable *circulus vitiosus* and Thomas is quite correct in saying: "The disease and the remedy which instinct suggests will act upon one another, the first requiring the second, and the second aggravating the first, until a most rebellious and deplorable condition is developed; the patient bereft of sleep by night and tormented constantly by day finally gives way to despondency and depression." In the early stages of pruritus vulvae it is perfectly easy to establish the diagnosis

*Urologic and Cutaneous Review, Jan., 1913.

upon examination of the parts, together with the statements of the patient. There is hyperemia and swelling of the labia which show excoriations of the skin in consequence of the scratching. The hairs of the vulva disappear almost entirely and those that are left are broken off. There are also slight secretions at the eroded places. The further the affection proceeds, the more is the anatomical picture of a normal vulva destroyed. The skin turns white and thick, the clitoris is characterized by a slight prominence or entirely disappears underneath a coarse white skin fold.

I have already referred to the etiological factors which have to be considered in this affection. It is highly important that each case of pruritus vulvae coming under a physician's observation be carefully examined in regard to its etiology, because in a great many cases the original cause occupies quite a minor position as compared with the prominent symptom, viz., the pronounced condition of pruritus vulvae. It stands to reason that all the known means have to be employed in order to clear up the etiology. If diabetes should be found that disease will, of course, have to be treated; the same refers to icterus or any other disease of the circulation. It is equally clear that intestinal ascaroids and parasites of the external genitals have to be looked for. It is equally important to look for the presence of endometritis which is associated with pronounced secretion and in some cases hypertrophy of the cervix. At the same time it is, of course, necessary to begin with a thorough treatment of the pruritus itself in order to remove the most important symptom consisting of continuous irritation.

Surveying the literature one is struck by the large number of remedies, intended partly for internal and partly for external application. The very fact, however, that there are such a large number of remedies will indicate that there is still room for something new and better and it is for this reason that I wish to describe a mode of treatment which has always proved successful. It also has the advantage of simplicity so that it may be done by any patient. I may at once state that I absolutely discard all aqueous or alcoholic applications; I furthermore forbid patients to bathe or to wash or douche the affected parts. I admit that these measures are very unpleasant for a fastidious woman, but that feeling is soon overcome at the first sign of improvement. Instead of water I prescribe application of olive oil which should be carefully repeated after each urination

and defecation. This should be followed by the use of an ointment composed as follows:

Cocainæ	0.5 Gm.
Mentholis	0.5 Gm.
Acidi Salicylici.....	0.5 Gm.
Lanolini	ad 50.0 Gm.

Cocaine is added to the ointment in order to dull the susceptibility of the parts; menthol to effect a cooling sensation; salic. acid as a highly antiseptic remedy. A thick layer of the ointment is applied on a gauze plug which is kept in position by a T-binder. Many patients experience a pleasant sensation by applying an ice-bag to the parts over night, this being frequently sufficient to do away with the objectionable itching. For this reason I always suggest the use of an ice bag in these cases. I am in the habit of preceding the above treatment by curettage and if necessary amputation of the cervix, if other causes can be excluded and if there is fluor and hypertrophy of the cervix present. Of course the treatment would be incomplete if the nervous system of the patients were not looked out for and it is of the greatest importance to see that they have sufficient sleep and to reduce their extreme nervous excitability. Sleep is best procured by careful doses of veronal or a similar drug. During the day bromide mixtures may be given, the best of which in my opinion is the following mixture:

Potassii Bromidi.....	
Sodii Bromidi.....	ãã 4.0 Gm.
Ammonii Bromidi.....	8.0 Gm.
Aq. Dest.....	ad 200.0 Cc.

M. Sig.: One tablespoonful t. i. d.

It is a strange fact that no mention whatever is made in the literature of the pernicious effect of water and alcohol, sublimate solutions being again and again recommended, as well as ichthyol, silver nitrate, iodine, etc. Bandler, however, mentions in his "Medical Gynecology," that he, too, has achieved better results without resorting to any douches whatever and that efficient draining of the vagina and keeping it dry is of decided value. He continues as follows: "It is in these conditions of interigo and eczema that the parts should be kept as free as possible of water and cleansing should be done with olive oil. If a sponge be used first, it should be followed by a cleansing with olive oil." I go further than this and say that water and alcohol are absolutely contraindicated in cleansing these parts until after two or three weeks of treatment an improvement has set in.

As an illustration I may mention the following case, which seems to me characteristic.

The patient was a woman, 42 years of age, of florid complexion, well nourished, whose nervous system was in a highly excitable condition. She had suffered for the last three years from burning and itching of the external genitals, for which she had been treated by several physicians. Her condition had become so exacerbated recently that she could hardly sleep at all. Careful examination showed absence of diabetes, nephritis or any other serious ailment. However, there was a pronounced leucorrhea. The vaginal and inguinal regions show brownish discoloration and are covered with excoriations in places. The labia majora and minora are swollen, the clitoris is hypertrophic. There is considerable mucopurulent secretion from the cervix, which is also hypertrophic. The uterus is anteflexed. External hemorrhoids. The patient was advised to apply olive oil t. i. d., followed by a 1 per cent. ointment of cocaine, menthol and salicyl. acid, with the result that the tormenting irritation was promptly removed. On the first day a curettage and amputation of the cervix was done. During the next few days she felt considerably better and was able to sleep well with the aid of bromides. About a week afterwards there was again considerable itching and insomnia. Therapy was continued as before, with the addition of an ice-bag to the itching parts. There was rapid and continued improvement, and about one month after the beginning of the treatment her condition was as follows: Subjective condition: The patient was entirely free from any itching sensation. Objective condition: the external genitals had again assumed their natural appearance. The excoriations and hyperemic places had entirely disappeared and made room for perfectly normal tissue. Nevertheless, the treatment was continued, including application of oil, ointment and use of bromides.

As was shown above pruritus occurs in nearly all cases as a symptomatic manifestation of some other affection, indeed many authors deny the existence of genuine pruritus. However, the affection is important enough to require special discussion of its therapy, because it is not always easy to find out the causative factor and in such cases the removal of the symptom, *i.e.*, pruritus must claim the physician's entire attention.

The treatment of pruritus in pregnancy also requires discussion. This assumes only exceptionally such severity as to render artificial induction of labor necessary. Before, however, resorting to this extreme measure, every known local therapy should be exhausted. Pregnancy should not be interrupted unless there are distinct objective signs of the patient being in imminent danger. Some cases, after the cause has been removed, require further therapeutic treatment. These are cases in which the skin changes of the vulva obstinately persist. After the cause has been removed, or if there is no further demonstrable affection, and the skin changes are more or less circumscribed, it is well to follow Schroeder's suggestion of excising the

pathological parts. These cases, however, are exceptions, the principal treatment consisting in removing the cause.

The object of my paper is to supply the general practitioner with useful information since these are the very cases which are often the *crux medicorum*. As a rule, they require protracted treatment and great patience both on the part of the physician, as well as of the patient.

1 West 85th Street.

COMMENTS ON SOME OF THE LESIONS OF THE FEMALE PELVIC VISCERA*

By Joseph C. Taylor, M.D.

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IN dealing with inflammation of the portio vaginalis by far the most frequent one met with is gonorrhea. Efforts have been made, by the employment of different antiseptics, to confine this inflammation to the vaginal portion. As yet, none has been discovered which will guarantee that the viscera higher up will not become infected. However, when meeting with this inflammation one should exercise every precaution, and by methods of treatment, endeavor to prevent its spread beyond the internal os. In my experience the one drug which seems to be most efficacious is the tincture of iodine. The parts which are mainly affected are the glands of Skene and the compound racemose glands of the cervix. So far as the vaginal glands are concerned, they are not very well developed. The use of iodine to the glands around the meatus urinarius is sometimes objected to by patients, and when this is the case, any of the silver salts, and especially argyrol, are generally used in this locality. The glands are not very deeply situated, and one usually gets a quick response here from the use of one of the silver salts. Personally I prefer argyrol. It is in the compound racemose glands of the cervix that gonococci seem to become deep seated and the most difficult to eradicate. It is the nature of the germ, both in the male and female, to find its permanent lodgment in deep recesses of the compound racemose glands.

In many cases it seems almost impossible to cure gonorrheal folliculitis of the cervix, the reason being that the germs become deeply seated in the roots of these glands and any medication directed toward them never reaches them. Moreover, though

*Read before the Medico-Surgical Society, New York. Amer. Jour. Surg., Oct., 1912.

the gonococcus is difficult to grow in the laboratory it seems to proliferate and thrive in the structure of these glands for months and even years. As for douching, so far as these glands are concerned, the ordinary antiseptic douche does nothing but cleanse the cervix, which, of course, is important in a way, but one must combat, and vigorously, too, the infection in the glands of the cervix, and, as I have previously stated, iodine in my hands has been the most reliable agent. The method of employing it is quite important, as frequently men in their zeal to cure the disease high up in the cervical canal, carry it into the endometrium through the internal os. And it is my firm belief that if the gonococcus crosses that barrier, the internal os, it will not stop until it has traveled the length of the fallopian tube at least. The secretion of the cervical glands is in itself a mild antiseptic, moreover, the secretion which disease excites seems to form a barrier to an onward invasion of any infective agent.

I have tried the application of various silver salts to the cervix in different clinics, but in my hands, with less success than with the iodine. As to the method of applying it: the cervix should be well exposed, and by means of an applicator wound with cotton, the os part way up into the canal should be well saturated with iodine. Some follow this with an insertion of a glycerine tampon, which, I think, adds but little to the treatment, as the disinfecting agent is the iodine. Others, in addition to the iodine, pack a little iodoform gauze around the cervix and allow it to remain forty-eight hours, when it is removed, and the same treatment repeated. The application of iodine should be repeated at least every forty-eight hours, in some cases which develop chronic gonorrheal endocervicitis no treatment seems to cure them. In such cases the amputation of the cervix is the only method to be employed.

I will purposely pass over many of the other infections such as tubercular, syphilitic, and others of the cervix which are rare, and pause for a moment to enter the field of gonorrheal inflammations of the tubes. Symptoms of extension of gonorrhea from the cervix into the tubes are to be noted. They are marked mainly by pain on both sides of the pelvis, sometimes so severe as to cause the patient to lean forward and press her hands to her sides. Some rise of temperature, usually marks the early invasion of the tubes. In these early cases the cul-de-sac is incised, the tubes opened and drained, the exposure of the infected areas together with the

presence of iodoform will limit the invasion in a large percentage of cases. Of course, I do not maintain that in so doing the tube will remain patulous, but as the patient will be spared the discomfort of going through a self-limited infection, and possibly, though her organs are damaged, she may go through life retaining them without any marked discomfort. This will be accomplished in only about fifty per cent. of the cases, but even so it is well worth trying, as there is practically no danger in the operation.

Puerperal Infections.—Space will not permit me to enter into the subject; it is too broad, and one not to be treated by any of the palliative measures.

We sometimes meet the so-called cervical cystic degenerations. Various methods of treatment have been found, as puncturing with a small knife, application of various preparations, but in my experience the only method of establishing a cure is amputation of the cervix. I refer to such cases as are uncomplicated by lacerations or infections.

Employment of tampons probably is as old as gynecology and no doubt has done and is doing an unlimited amount of good, and about the only possible harm that could come from their use would be that their employment is usually so prolonged that the real surgical conditions would progress so gradually that cure could not be effected.

Boro-glyceride and glycerin tampons, ichthyol and many other combinations have been employed for all sorts of conditions. In the chronic pelvic inflammations, ichthyol tampons shoved up into the vault of the vagina certainly bring about relief of symptoms. Ichthyol seems to have more or less of an antiseptic or analgesic effect, so much so that patients swear by them. I do not think that any of these drugs when inserted in the vagina have any effect upon the intra-abdominal pelvic viscera, and perhaps a good deal of the relief obtained is produced by the outward pressure brought about by their presence. They are generally employed in all clinics as well as office practice. And frequent in post operative cases where a portion of the pelvic organs have been removed, the employment of ichthyol tampons brings about relief from unpleasant sequelae following operation. As, for instance, the removal of both tubes and one ovary; this will leave the other ovary with an unusual blood supply and frequently congestion follows. Ichthyol tampons seem to have a very good effect mentally as well as directly upon such ovary. No doubt the congestion of the ovary would subside if

left to itself, but the patient has the satisfaction of knowing that something is being done for her relief. As for the effect of glycerine and ichthyol on acute infective endocervicitis, I doubt their being of very much service, but in chronic conditions of both cervix and tube and ovary, relief at least may be obtained.

Though I am departing a little from the subject of this paper, I cannot refrain from mentioning some points in the early diagnosis of cancer of the cervix. Text-books as a rule give symptoms as bleeding, presence of a cauliflower growth, later emaciation and cachexia. When we stop to consider that in this, a medical center, only five per cent. of the cases of cancer of the cervix are recognized early enough that a major operation is warranted, I am quite sure you will pardon me for taking up your time in bringing out a few points relative to the early diagnosis of cancer of the cervix.

The earliest sign of beginning carcinoma is a fine watery discharge not confined to the menstruation, but more or less constant; enough so that an intelligent woman will consult her family physician relative to it, but too often members of the medical profession regard this too lightly, prescribe an antiseptic douche, assure the patient she is all right, more often than not without physical examination. The cause of this watery discharge is the molecular activity which is going on in the cells around the cervical glands which causes them to secrete an abnormal amount. On physical examination, if one is careful, the early appearance of cancer of the cervix can be easily noted. If it is not recognized until the cauliflower growth is developed in the patient, during the menstrual period of life, the percentage of recurrence after major operation will be alarmingly great.

The best description that I am able to give of it is perhaps in the beginning the cancerous area resembles a spot on the moon, or, to be more definite, there will be a well defined area where the glistening appearance of the cervix disappears within a circumscribed area as plainly as the line of erysipelas, and if it is detected at this stage one can hope for a recovery without recurrence by employing a major operation.

Another test is to insert in this area a sharp tenaculum, and with gentle traction, if the tenaculum pulls out, this is almost sure to be cancerous tissue. In large cities we have at our disposal, and we should employ him, the microscopist. But one thing that I wish to impress upon you is that if a section is to be cut from the cervix, a thorough understanding should be had

with the patient, that if this section proves to be cancerous the patient will submit to an operation within three days. The reason being that incision into a cancerous area causes the disease to spread with much greater rapidity, hence we should never incise without some agreement with the patient as to the operation which is to follow if the area should prove to be cancerous.

Displacements.—The most common malposition in the young girl is acute ante-flexion; oftentimes the subject is not brought to the doctor's attention until the patient has been suffering from dysmenorrhea for years. Pessaries have been employed with little or no effect. The usual symptoms are excessive pain, often confining the patient to bed before menstrual flow is established. Various operative procedures have been employed, Alexander's operation has often been done, pessaries inserted, cervix amputated, and numerous others, I firmly believe that local treatment, tamponage, painting the cervix, etc., has no effect whatever. In employing stem pessaries we must recognize the fact that we have a foreign agent which is bound to be more or less irritating; inserted after a curettage more or less risk is taken in producing an inflammation. I have seen cases of very severe infections following the insertion of so-called stem pessaries. Personally I never employ them. What has proved to be most effective in my hands is thorough dilatation of the internal os and to lateral incisions curving out into the muscular fibres and then separation by divulsion, keeping them separated on the same principle as in cutting the sphincter muscle. The results will be good especially in the married woman, for pregnancy usually follows, which is the real cure of the condition.

[The remainder of Dr. Taylor's interesting article being devoted more especially to surgical procedure does not strictly fall within our field. To those of our readers who are interested in these matters we would refer them to the original article as published in the "American Journal of Surgery."—ED.]

Laryngitis:

Atropinæ Methylbromidi.....grn. ss
Antipyrinæ
Ammonii Chloridiāā grn. viij
Fl. Ext. Glycyrrhizæ.....f. 5j
Aquæ Destillatæad. f. 5vj
M. Sig.: Teaspoonful every hour.

Chronic Hypertonic Rhinitis:

Sol. Paraneprhin (1:1000).....℥xxx
Cocainæ Hydrochloridigrn. iij
Glycerinif. 5iv
Sol. Perhydrolis (1 + 4).....f. 5iv
M. Sig.: Paint on affected part.

DIGITALIS GLUCOSIDES AND ALLIED DRUGS

(Continued from page 55)

Nerium Oleander.—In the bark and leaves of *Nerium Oleander* (Apocynaceæ) several glucosides are present, which were first isolated and described by Schmiedeberg. In spite of their digitalis-like action they have not been introduced into therapeutics, and for this reason these preparations cannot be obtained in the market. For the sake of completeness they will be briefly described here.

Schmiedeberg describes *neriin* as a yellow, amorphous substance having a bitter taste and a neutral reaction; it is readily soluble in alcohol and water. The author was not certain whether *neriin* was identical with digitalin, but its properties make this seem probable, wherefore he named it "oleander-digitalin."

Neriantin is amorphous or crystalline according to its method of preparation. It has only a feeble action, similar to that of saponin or digitonin, and does not cause the frog's heart to stop beating in systole. On hydrolysis it splits up into sugar and *neriantogenin*.

Oleandrin is a colorless, amorphous substance, which turns yellow on keeping. It is soluble in alcohol and chloroform, but only slightly soluble in water. Pharmacologically it has the action of digitalis and a dose of about 1/250 grain causes the frog's heart to stop beating in systole.

As Schmiedeberg had only been able to obtain a very small quantity of glucoside from the leaves of oleander, Pieszczyk examined the bark of this tree and found, besides the *neriin* described by Schmiedeberg, a crystalline, colorless glucoside, soluble in alcohol, melting at 171° C., which he named *rosaginin*. According to the physiological tests carried out by Ehrenthal it is highly poisonous. In frogs it produces convulsive symptoms and causes the heart to stop beating in diastole. Besides this it is a powerful local anesthetic. It may also be noted that Dubigadoux, Durieu, and Leulier, claim to have found *strophanthin* in the bark of the Algerian oleander.

The glucosides *neriodorin* and *neriodorein*, isolated by Greenish from the seeds of *Nerium odoratum*, also belong to the group of cardiac poisons; but they have found no more favor in therapeutics than have the glucosides of oleander mentioned above.

Von Oefele recommends the tincture prepared from the fresh leaves of the Italian

Nerium Oleander for therapeutic use, especially as a temporary substitute for digitalis medication. As a result of its internal use the pulse becomes slower, regular and strong, diuresis is almost always considerably increased, or if this is not the case, the specific gravity of the urine is increased. In practice the following prescription is used:

Tinct. Nerii Oleandri. 10.0 Gm. (3½)
Aq. Menth. Pip. 1.0 Gm. (℥xxvij)

Sig. 20 drops to be taken in sugar and water three times a day.

According to the author the action of oleander resembles that of digitalis and also, that of *adonis* and *strophanthus*, in that small doses only act after a time and large doses have a lasting action. The prolonged use of oleander tincture may give rise to dizziness and may disturb the appetite, by-effects of little moment when compared with those occurring as a result of digitalis medication.

Ouabain *cryst.* is identical with *Gratus-strophanthin* (*strophanthin* *cryst.*), which see.

Ouabain, *amorphous*.—Amorphous *ouabain* is prepared in my laboratories from the wood of *Acocanthera* (*Schimperi* or *Deflersii*), of the natural order Apocynaceæ, indigenous to East Africa. It forms an amorphous, white or yellowish powder, readily soluble in water. The following reports have reference to this preparation.

According to Lewin, *ouabain*, like *erythrophloeine*, causes deep anesthesia of the mucous membranes. When administered subcutaneously or internally it has a toxic effect on both cold-blooded and warm-blooded animals. In the latter death is accompanied by severe dyspnea with clonic convulsions; dyspnea and death are due to disturbances in the exchange of gases in the lungs, caused by disturbed cardiac action. Lewin, as early as 1893, suggested the possibility of its medicinal use.

It was not until 1906 that Stadelmann reported upon the substitution of an infusion of *ligni acocantheræ* for infusion of digitalis and offered clinical proofs of the utility of this drug. The author's earliest experiments with the glucoside *ouabain* were most promising. Its action was not only comparable to that of digitalin, but was superior to it in that subcutaneous and intramuscular injections of its solution were neither painful, nor did they cause inflammatory symptoms of any consequence. In more recent communications Stadelmann reports that an intramuscular injection of a 0.03 to 0.04 per cent. *ouabain*

solution is only slightly painful. Sensitive patients complain only of a burning sensation, lasting 1 to 2 hours, which may be successfully treated by compresses of aluminium acetate solution. Other patients scarcely notice any pain. Ouabain is also suitable for subcutaneous and intravenous injection. When used thus, according to the author, it is only slightly painful, incomparably less so than digalen, which can be injected subcutaneously and intramuscularly in the same concentration and the same dosage. After injections of ouabain he has hardly ever seen infiltrations or inflammation. Intravenously the drug can also be used like digalen. The author begins with small doses of ouabain in order to test the action of the preparation and thus to avoid effects such as occur after the intravenous injection of digitalis substances. According to his account, only one injection was given, and repeated, if necessary, at intervals of 3 to 4 days, or if larger doses were employed, after 1 to 4 weeks. The injection was scarcely ever repeated within less than a week, only at first, when small doses of $\frac{1}{80}$ to $\frac{1}{64}$ grain were used, a second injection was given after 3 to 4 days. Stadelmann has never known disadvantages to accrue from this medication, nevertheless for any but desperate cases he advises an interval of at least a week, especially if a dose of $\frac{1}{64}$ to $\frac{1}{32}$ grain has been given. The concentration of the solution was 0.04 per cent. and of this 3 to 6 Cc. (50 to 100 min.), corresponding to 0.0012 to 0.0024 Gm. ($\frac{1}{50}$ to $\frac{1}{25}$ grain) of ouabain were injected. But for therapeutic use the author considers a dose of 0.001 to 0.002 Gm. ($\frac{1}{64}$ to $\frac{1}{32}$ grain) sufficient. After the injection of 6 to 7 Cc. he observed by-effects, such as anxiety, palpitation, dyspnea with increase in the pulse rate and vomiting. The cases treated were: Aortic insufficiency, in some cases combined with arterio-sclerosis or nephritis, vitium cordis complicatum, mitral lesions, chronic nephritis with weak heart, in some cases combined with arterio-sclerosis, cardiac weakness combined with arterio-sclerosis or myocardial degeneration and conditions of collapse. The results obtained in these different cardiac lesions varied; in some cases they were good, in some satisfactory, in some transient and in some negative, just as is occasionally the case with digitalis, digalen, diuretin, strophanthus, caffeine, etc. The detailed reports of the author relating to the action of his method of treatment on the pulse, diuresis, and the general condition cannot well be given in abstract and should be referred to in the original. Whether ouabain is superior to other cardiac tonics cannot

be determined from the statements which the author has given in an objective form, but it certainly deserves consideration from a medical standpoint. The author found that in those cases in which the preparation failed, other drugs such as digitalis and digalen were not usually more successful. Occasionally diuretin, theocin or strophanthus were of more use and sometimes these also failed; occasionally ouabain proved successful after the other drugs had failed.

From Stadelmann's most recent publication it appears that ouabain is likely to prove a most useful remedy which can be strongly recommended for general trial and use.

For internal administration Stadelmann prescribes the following solution:

Ouabain.....	0.004 Gm. (grn. $\frac{1}{6}$)
Aq. Destill.....	100.0 Gm. ($\frac{33\frac{1}{3}}$)
Aq. Menth.....	30.0 Gm. ($\frac{3j}$)
Syrup.....	ad 150.0 Gm. ($\frac{3v}$)

Fig.: One tablespoonful to be taken every two hours.

This solution is said to have a bitter taste, but not as unpleasant as that of strophanthin. Four bottles of this solution were given, so that the patients took about $\frac{1}{16}$ grain for a dose, and $\frac{1}{8}$ grain in the course of a day; thus during the week of treatment they would take $\frac{1}{4}$ grain. The author did not obtain better results by means of this medication than by using digitalis or strophanthus; this he attributes to the severity of his cases and the employment of too small doses. He considers that double this dose may be given in the beginning and advises that as a test, mixtures should be prescribed containing $\frac{1}{8}$ to $\frac{1}{6}$ grain of ouabain in 5 ounces. In isolated cases the author has actually achieved satisfactory results with larger doses. Nevertheless intravenous and intramuscular injections are apparently more advantageous than internal administration. The intramuscular application gives the same results as the intravenous injection and is preferable to the use of other digitalis preparations which cause pain when applied in this way. In those cases in which internal digitalis medication is not well borne, intramuscular injections of ouabain should fill a considerable gap in the therapy of severe heart disease and the symptoms to which it gives rise. For intramuscular injection an aqueous solution of ouabain $\frac{1}{8}$ grain in $\frac{1}{3}$ ounce is used. According to the author, 17 minims of this is injected 3 to 4 times a day. The results in aortic insufficiency, mitral lesions, vitium cordis complicatum, myocarditis, nephritis, arterio-sclerosis with weak heart, edema,

etc., are said to be the same as those obtained by intravenous injection, which have been described above.

Oxysparteine.—This base, first prepared by Ahrens by the oxidation of sparteine, forms white crystals, which turn yellow on keeping, and have the composition $C_{15}H_{24}N_2O$; they melt at 84° C., and dissolve in water, alcohol, ether and chloroform. The hydrochloride ($C_{15}H_{24}N_2O.HCl + 4H_2O$) serves for therapeutic use; it is soluble in water and alcohol.

In the pharmacological investigation of oxysparteine Hürthle found that the alkaloid has an action on the circulation of both cold-blooded and warm-blooded animals, which manifests itself in an increase in the cardiac activity. The capacity of the heart for work is said to be increased in most cases, without alteration in the vascular tone and in spite of the diminution in pulse rate.

According to von Oefele's communications, oxysparteine hydrochloride may be used therapeutically in cardiac lesions in which the tissue processes have not completely ceased, especially when accompanied by degenerative diseases of the myocardium. At the beginning the drug is given subcutaneously in doses of $\frac{2}{3}$ grain and rapidly increased to $1\frac{1}{2}$ grains a dose, daily. Prolonged administration cannot be recommended as the organism soon becomes accustomed to the preparation. In the author's experience the simultaneous administration of opiates should be avoided as oxysparteine then fails entirely.

Langlois and Maurange have found a new field of usefulness for oxysparteine. These investigators had previously found that the subcutaneous injection of sparteine had a tonic and regulating effect on the cardiac action, should cardiac disturbances occur during chloroform anesthesia. Oxysparteine has proved of still more use in this respect. According to the communications of the authors mentioned above, an injection of $\frac{1}{2}$ to $\frac{3}{4}$ grain of oxysparteine hydrochloride and $\frac{1}{8}$ grain of morphine hydrochloride is given about an hour before the operation, and thus anesthesia is obtained which can be maintained by the use of very little chloroform. The heart-beat remains regular and strong, even if the respiration should become somewhat shallow. If the operation lasts longer than an hour, the injection of oxysparteine may be repeated after this time, but without the morphine. For this purpose the authors used a solution of $7\frac{1}{2}$ grains of oxysparteine hydrochloride in $\frac{1}{2}$ ounce of aqua amygdalarum amar., of which they injected 6 to 8 divisions of a Pravaz syringe.

Periplocin.—E. Lehmann was the first to isolate this glucoside from the bark of *Periploca græca*, natural order Asclepiadeæ, indigenous to the Mediterranean districts. He described it as a crystalline substance, having the formula $C_{30}H_{48}O_{12}$, which is said to split up on hydrolysis into periplogenin and glucose. I have not succeeded in obtaining a crystalline substance from this drug. The periplocin prepared by me is an amorphous, yellow powder, soluble in water and alcohol.

There is no doubt that periplocin represents the active principle of *Periploca græca*, and, according to the investigations of Burschinsky, it possesses a specific cardiac action. The first trials on patients suffering from heart disease were made by Lewaschew, who used the following solution for subcutaneous injection:

Periplocin.....0.01 Gm. (grn. 1-6)
Sodii Chloridi.....0.06 Gm. (grn. j)
Aq. Destill.....10.0 Gm. (3j)

Sig.: 8 to 17 min. to be injected.

As a maximum daily dose the author used $\frac{1}{4}$ grain. The injections were given daily, or at intervals of 2 to 3 days. An hour after the injection the pulse rate diminishes, the blood pressure rises, the heart sounds and the organic sounds become more distinct, and diuresis increases considerably in the course of a few days. But diuresis is only increased if congestion be present consequent upon cardiac lesions, and not in renal or hepatic disease. In using the maximum dose Lewaschew has occasionally observed nausea, vomiting and diarrhea. These symptoms, which are well known to occur when digitalis is used, cannot interfere with the general employment of periplocin. However, it had also been observed that injections of periplocin occasioned local irritation and pain. For this reason Cholewa proposed to administer periplocin nasally; it acts as well when given thus and is less dangerous. As a medium daily dose the author suggests $\frac{1}{125}$ grain. The best method of giving the drug is in 0.01 per cent. aqueous solution (85 min. as a dose) by means of a suitable spray into the nose and respiratory tract. By this method and dosage Cholewa has never observed the occurrence of unpleasant by-effects or cumulative action. After one or two applications of periplocin, according to the author, the whole body is suffused by a feeling of warmth, the pulse becomes fuller and more rapid. If shortness of breath is present the lung becomes clear and the breathing easier, the blood pressure falls and diuresis is increased. Even after small doses arrhythmia and the

slight attacks of pseudo-angina, from which neurasthenics often suffer, cease. The action lasts for 24 hours, or longer. Periplocin is especially indicated in those cases in which congestion occurs as a consequence of disparity between vascular resistance and cardiac strength, and leads to dyspnea and asthma, conditions which are also favored by vasomotor neurasthenia. It is also indicated in ischemic atony of the intestines, membranous enteritis, arteriosclerotic contracted kidney and stenocardia, in which it is preferable to other diuretics because it does not interfere with digestion. In diseases of the heart and vessels, also, in which a prolonged use of digitalis would probably be required, the medication recommended by Cholewa is suitable.

According to Silberberg's communications, the intravenous employment of periplocin seems hopeful. It has the same effect as the other cardiac tonics, viz., it regulates and accelerates cardiac action. Simultaneously with the increase in cardiac action, the blood pressure and diuresis are increased. The augmentation of cardiac action is especially apparent in cardiac lesions, the regulation of cardiac rhythm in myocarditis. The constant results of intravenous injections of periplocin are: Increased rapidity of cardiac action and removal of the troublesome subjective sensations, such as attacks of stenocardia, shortness of breath and irregularity of the pulse; the action is immediate. But, according to Silberberg, the special advantage of periplocin over other cardiac tonics lies partly in the painlessness of the intravenous injections and partly in the absence of cumulative symptoms. Nor has the author ever seen other by-effects. According to Silberberg, the medium therapeutic dose is $\frac{1}{8}$ grain. The sterilized periplocin solution of Lewaschew (compare above) might be used for this purpose in doses of 1 Cc. (17 min.).

Scilla Maritima.—After the publication by Fagge and Stevenson of a communication to the effect that they had discovered a substance similar in action to digitalis in squills (*Urginea maritima* Barker = *Scilla maritima* L.), which has since olden times been used as a diuretic in dropsy, this drug was investigated by various observers with regard to its active principles.

As early as 1826 Tilloy described a bitter substance which he had obtained from *Scilla maritima* and which he called *scillitin*. According to Schroff, this was a substance having a narcotic and poisonous action, which was combined in the drug with a volatile acrid substance. Huse-

mann, in contradistinction to Schroff, observed no cardiac action in experimenting with this preparation, and considered the contradictory results to be due to differences in the scillitin of commerce obtainable at that time. Mandet distinguished two substances, the poisonous sculein and the non-poisonous scillitin, the latter having a diuretic action. Jarmersted found a glucoside in *Scilla maritima*, which is said to have been but slightly inferior to digitoxin in pharmacological action. This body, which he named *scillain*, was further investigated chemically by Kurtz, and pharmacologically by Kobert and Schütz. All these attempts to prepare from squills a uniform, active substance have not led to the desired result. I also have failed to isolate a substance of this description.

The *scillipicrin* supplied by me is a thoroughly purified extract, and the *scillitoxin* which I prepare is a resinous substance. Both preparations have been tested physiologically by Möller, and clinically by Fronmüller, but they have not been introduced into therapeutics.

I issue scillipicrin in the form of yellow, or reddish-yellow, hygroscopic pieces. The preparation dissolves in water and is therefore specially suitable for subcutaneous injection. It has a definite action on the heart, which manifests itself in the retardation of cardiac action. In frogs, doses of 0.01 to 0.02 Gm. cause the heart to stop beating in diastole. Therapeutically the drug is used in dropsy and in heart and kidney disease. A dose of $\frac{1}{3}$ to 1 grain in aqueous solution is injected subcutaneously once a day. According to Fronmüller, scillipicrin is the preparation of scilla best suited for therapeutic use, as he considers it an excellent diuretic. He states that it is superior to all other diuretics. In 17 cases of severe oliguria reported by the author, he states that it only failed twice, while in all the remaining cases it doubled or trebled the amount of urine. In order to avoid symptoms of irritation, scillipicrin should not be injected in too concentrated a solution, for when a 10 per cent. solution was used Fronmüller observed severe local irritation.

Scillitoxin, an amorphous, brownish substance soluble in alcohol, acts more energetically on the heart than does scillipicrin, and in sufficiently large doses causes the heart to stop beating in systole. It is used as a diuretic in nephritis and in cardiac lesions in doses of $\frac{1}{8}$ to $\frac{3}{32}$ grain several times a day; $\frac{3}{4}$ grain has been fixed as the maximum daily dose. Fronmüller has frequently observed giddiness, headache

and narcotic symptoms as by-effects produced by the preparation.

As the preparations of *Scilla maritima* mentioned above have not been sufficiently tested clinically, and make no pretence to chemical individuality and purity, we shall refer briefly to the use and therapeutic value of *Scilla maritima* itself and the galenical preparations made from it.

It is generally assumed that *Scilla maritima* and its galenical preparations, such as the tincture, the extract and the vinegar, have two kinds of action, a cardiac action, manifested by a rise in blood pressure, and in large doses by stoppage of the heart in systole, and secondly an action on the expectoration, the mechanism of which has not been satisfactorily explained. According to Husemann and König, the extract of scilla, in experiments on animals, acts on the heart and circulation in a similar manner to digitalis, *i.e.*, in small doses it causes stronger and slower cardiac contractions. Apart from nausea and vomiting, symptoms which are well known to occur with all cardiac tonics, the authors noticed no unpleasant by-effects following the use of scilla medication. It can, therefore, be used in dropsy and whenever digitalis is indicated. It is usual to combine it with diuretic drugs. The galenical preparations of squill in most general use are the extracts and the vinegar, which in the German Pharmacopœia are required to be prepared from the white variety of *Urginea maritima* Barker, although Schroff had pointed out that the red variety was more active. The preparation is given in single doses of 15 to 75 grains, and in daily doses of 1 ounce.

Sparteine.—Broom (*Spartium scoparium* L., natural order Papilionaceæ) contains two pharmacologically active principles, sparteine and scoparin, of which sparteine, on account of its cardiac action, is the only one of interest to us at present. This alkaloid was first obtained from this plant by Stenhouse. Afterwards Mills, Kirchmann, Houdé, Soldaini, Kley, Willstaetter and Marx, and others, reported on its preparations and tests.

For therapeutic purposes the sulphate ($C_{15}H_{26}N_2 \cdot H_2SO_4 + 5H_2O$), a salt readily soluble in water and alcohol, is the most suitable.

According to physiological and pharmacological investigations, sparteine has an action on the heart which according to some is similar to or identical with the action of digitalis, while, according to others, it differs from the latter in that it does not, like digitalis, prolong systole,

but prolongs diastole and causes abnormal dilatation of the heart. According to Kobert, sparteine, like the digitalis products, belongs to the class of drugs which raise blood pressure and increase the rate of circulation. But whereas the digitalis products are placed by the author among those drugs which increase the tone of the heart and blood vessels, he places sparteine among the drugs which increase the heart's capacity for work. Sparteine deserves full consideration from a therapeutic standpoint, if only because it is relatively slightly toxic. It may be prescribed in those cases in which digitalis medication has to be suspended, in order to avoid cumulative action, provided there is no urgent danger and an immediate action is not required. The slight toxicity of the alkaloid is well shown by an experiment of Griffé's. This author took 6 grains of sparteine sulphate without evil consequences, apart from a sensation of dulness in the head.

Laborde and Germain-Sée found that the subcutaneous injection of sparteine increases the pulse rate and frequency of respiration, strengthens the cardiac action and rapidly restores the disturbed cardiac rhythm; this is said to be noticed particularly in severe atony of the myocardium with retardation of the cardiac contractions. According to the clinical tests of Gluzinski, sparteine acts very rapidly in badly compensated cardiac lesions, in which it has a good effect on the pulse and the subjective symptoms. He gave it internally in doses of $1\frac{1}{2}$ grains. In general, however, he only advises the use of sparteine in cases in which digitalis is contra-indicated, if the action of digitalis cannot be waited for and if insufficient cardiac activity has led to troublesome symptoms. Clarke came to the same conclusions as a result of his clinical investigations. Following the use of single internal doses of $\frac{1}{6}$ to $\frac{1}{4}$ grain an action was observed after 30 to 40 minutes and lasted for 4 to 5 hours, after which period the dose had to be repeated. In his experience this could be easily carried out, because daily doses amounting to as much as 10 grains occasioned no toxic symptoms. Clarke also confirmed the action of sparteine sulphate in increasing the rate of respiration.

According to Stössel, sparteine sulphate probably has the same action as digitalis qualitatively, but not quantitatively. It has, however, no diuretic effect. This was also pointed out by Frommüller, who considered scoparin to be the component of broom having the diuretic action. This

author, also, looks upon sparteine as a supplementary drug in cases in which digitalis is not well tolerated. Prior, on the other hand, recommends its use if digitalis fails, or if it be desirable to quickly regulate the cardiac action. For this purpose doses of $1\frac{1}{2}$ grains should be used. Larger doses should be avoided, as they are liable to cause the return of irregularity of the cardiac rhythm, which had before been regulated.

The rapid action of sparteine, insisted upon by the observers mentioned above, was doubted by Kurloff and Lewaschew, for by measuring the blood pressure in patients and making sphygmographic records they were only able to perceive an action on the heart after 12 hours. Both authors, however, admit that the preparation has a beneficial effect on disturbances of compensation. Kurloff even states that he has observed* an increase in diuresis after the administration of sparteine, but with this Lewaschew does not agree. Lewaschew considers $1\frac{1}{2}$ to 5 grains of sparteine sulphate, given in 3 to 4 separate doses, to be the most reliable daily dose.

Thomas, in the course of his clinical studies, found that although the action of sparteine sulphate was similar to that of digitalis, it was slower and less intense. The drug is indicated in chronic myocarditis, asystole and subjective troubles, and also in cardiac debility and arrhythmia. Internally, as well as subcutaneously, it may be administered 3 times a day in doses of $\frac{3}{4}$ grain.

On account of the relatively slight toxicity of sparteine, it is scarcely possible to fix a maximum dose. In the literature $\frac{1}{2}$ grain and $1\frac{1}{2}$ grains are given as the maximum single doses, $1\frac{1}{2}$ grains and $7\frac{1}{2}$ grains as the maximum daily dose.

Sparteine has been suggested for external use as an antipyretic by Geley, Guinard, Mollière and Vinay. According to these authors, the temperature can be considerably lowered in febrile diseases by painting with sparteine solution, in the same way as guaiacol is used; at the same time it has a beneficial effect on the skin eruptions in scarlet fever, small-pox, measles and erysipelas. In erysipelas, Mollière and Vinay state that they have obtained most brilliant results. In mild and medium cases the temperature was immediately reduced and the patients were cured within 2 to 3 days. In severe cases the temperature fell by 1° to 1.5° C. after painting with the preparation, the general

condition was improved, the eruptions were limited and only in cases of leucocythæmia and cirrhosis did the disease run a severe course. The best time for applying the preparation by painting is when the temperature is not rising, e.g., in the evening. For this purpose a solution of 15 grains of sparteine sulphate in $\frac{2}{3}$ ounce of water is used, which is only applied to healthy areas of the skin, which are then protected by a light bandage.

Strophanthin.—The strophanthus plant is a member of the natural order Apocynaceæ, indigenous to tropical Africa, Madagascar and the Malay Archipelago, the botanical species of which has not yet been definitely determined. No less than 40 different species of strophanthus are known. According to Braun, 5 varieties have been found in German East Africa alone. A large amount of literature has been published relating to the derivation of strophanthus seeds, their action and use and the strophanthin prepared from them, which cannot be quoted here.

In recent years special attention has been paid in therapeutics to two kinds of strophanthus seeds, the Kombé seeds of *Strophanthus Kombé* Oliver, from which I isolate *amorphous strophanthin. puriss.*, and the Gratus seeds of *Strophanthus Gratus* Wall and Hook, from which I prepare the *crystalline Gratus-strophanthin*. These two strophanthins are two totally different bodies and must therefore under no circumstances be substituted for one another in prescribing and dispensing. In order to avoid confusion it would be better if in place of the names used hitherto for these two strophanthins, the designations "Gratus-strophanthin" and "Kombé-strophanthin" were introduced.

1. *Kombe-Strophanthin* = *k-Strophanthin* = *Strophanthin. puriss. amorph.*—The amorphous strophanthin, prepared from the seeds of *Strophanthus Kombé*, is a yellowish powder, soluble in water and alcohol.

The work of Th. R. Fraser on the pharmacological and therapeutic action of strophanthus and the strophanthins was instrumental in influencing the introduction of strophanthin into therapeutics. According to the minute investigations of this author, small doses of strophanthin especially prolong diastole, while large doses prolong systole (compare Gottlieb, *Therapeutische Monatshefte* 1911, p. 10). But strophanthin always brings about an increase in cardiac activity and retardation of the pulse. Its action on the heart is considerably stronger than that of the

*According to Rhode, increased diuresis is the rule after 3 to 4 doses of 0.01 gramme ($\frac{1}{2}$ grain) a day. This treatment is also said to cause a decrease in albuminuria. (*Berliner klinische Wochenschrift* 1892, p. 815.)

digitalin of commerce, but weaker with regard to the constriction of the blood vessels. This property of not causing narrowing of the lumen of the vessels, which is also confirmed in the communications of Popper, Langgaard, Paschkis and Zerner and others, was considered by Fraser to be an advantage of strophanthin medication in cardiac lesions over digitalin. But Kobert, Kakowski and Günther came to the conclusion that strophanthin also caused constriction of the vessels. However, this may be, Fraser's experiments on man, using the internal administration or the subcutaneous injection of $\frac{1}{64}$ grain of strophanthin, certainly led to a considerable improvement in the circulation, increase in diuresis, and the disappearance of edema, dyspnea and palpitation, which proved the value of strophanthin.

Rothziegel found that a dose of only $\frac{1}{200}$ grain of strophanthin strengthened the pulse in about 5 to 10 minutes. Although the removal of arrhythmia and the increase in diuresis took effect somewhat later than when digitalis is used, the result lasted longer. As the author held the view that strophanthin possessed no cumulative action whatever, he usually prescribed it in single doses of $\frac{1}{200}$ grain and in daily doses of $\frac{1}{64}$ to $\frac{1}{20}$ grain; subcutaneously, especially in cardiac debility, he used doses of $\frac{1}{125}$ grain, by which means he effected a rapid strengthening of the heart. Schulz's discovery that the patient does not become habituated to strophanthin is also of importance, but the clinical appreciation of the glucoside was due to the communications of A. Fraenkel, which instigated a number of investigators to study strophanthin therapeutically.

Fraenkel prefers the intravenous application of strophanthin to other methods, as it possesses many advantages. The action is more rapid than that following its internal, subcutaneous or intramuscular exhibition, and the whole situation may be changed in a few minutes. In spite of smaller dosage, the results are certain, while no intestinal disturbances need be feared. Thus the physician, by the aid of intravenous strophanthin injection, is in quite a different position than was formerly the case in the presence of even severe, acute compensatory disturbances, and with this agent he is generally in a position to appreciate the exact condition of the patient and to relieve his symptoms, which are often most distressing. Fraenkel's method is excellent in all cases of threatening cardiac debility, in which the sudden failure of the circulation does not depend on insufficiency of the kidneys and blood

vessels, but is of cardiac origin. It is also indicated in all cases of acute and chronic cardiac insufficiency, in which speedy treatment is desirable, even though there be no immediate danger. A single injection often suffices in these cases to effect lasting compensation. Should this not occur, *i.e.*, if the effect is only transitory, the internal administration of digitalis may be begun within the following 24 hours; by this means the digitalis action begins as the strophanthin action ceases, and thus the disadvantages of a latent period are circumvented. The intravenous injection is valuable, also, in cases exhibiting an idiosyncrasy to digitalis, or in which the internal administration of digitalis products is contra-indicated by the condition of the gastro-intestinal tract. Care is advisable if the patient is still under the influence of digitalis, for in spite of the assertions of several authors (compare above) it cannot be considered as proved that strophanthin has no cumulative action. Fraenkel suggests $\frac{1}{64}$ grain as an effective single dose, which is dissolved in 17 min. of normal saline solution and injected intravenously. In severe cardiac debility, in the moribund, this amount should not be given in one dose, but in two injections in the course of an hour. The intravenous injections of strophanthin, if correct technique is employed and the solutions are properly sterilized, should practically never cause by-effects. But it should be noted in using strophanthin that injections should not be given too frequently or in too large doses in order to force an effect, especially not in unsuitable cases. The dose of $\frac{1}{64}$ grain according to Fraenkel, should not be repeated within 24 hours.

Strophanthin is also very useful in congestive conditions, in which an injection of $\frac{1}{64}$ grain causes considerable diuresis and alleviates the symptoms more rapidly and for just as long as does a course of digitalis treatment of several days.

According to Hasenfeld, strophanthin acts even in those case in which other drugs have failed, but only provided the heart has still a certain amount of power, otherwise this drug also fails. In circulatory disturbances with high blood pressure, caution is, in his opinion, necessary. He considers it advisable in these cases to perform venesection before giving the strophanthin.

Hedinger points out that only the edema due to cardiac insufficiency is improved by strophanthin, so that the result of injecting strophanthin into a dropsical patient may prove useful in diagnosing the etiology of the disease.

Bacelli, in treating the paroxysms of essential tachycardia, used a solution of $\frac{1}{64}$ grain of strophanthin in $\frac{1}{3}$ ounce of normal saline solution. Of this 85 min. injected intravenously in threatened stoppage of the heart, acted almost instantaneously.

Hornung is of the opinion that as much as $\frac{1}{10}$ grain of strophanthin may be injected in the course of a day, and that this amount may be prescribed without fear for a prolonged period, for in one of his cases he gave $\frac{1}{8}$ grain within a week.

Crispoli found that in severe disturbances of compensation strophanthin did not act when given internally, whereas intravenous injections acted at once. Intramuscular injections take effect somewhat less rapidly and surely, but they are useful in cases of medium severity. Only in nephritis and arterio-sclerosis does he consider that strophanthin should not be used. According to Pennesi, the injections are of special value in congestion of the lesser circulation, as for example in emphysema. But in these cases the action should at the latest become manifest after the second injection; if this is not the case, the continuation of this treatment is of no value.

In an interesting experimental work by Vagt on the action of intravenous injections of strophanthin in health and disease, it is stated that doses of $\frac{1}{64}$ grain, given to healthy individuals, have no effect on the peripheral vessels, although they always exercise a distinct but moderate action on the heart, and cause a transitory rise in the blood pressure. But in patients suffering from severe loss of compensation they act powerfully on the force of the beat, its regularity, equality and frequency; thus the diseased heart, in certain circumstances, is more susceptible to strophanthin than is the healthy organ.

While several of the authors mentioned above decline to use injections of strophanthin, not only on account of their slower action, but more especially on account of the pain they cause, Kontschalowski has come to the conclusion that solutions of strophanthin, given in therapeutic doses, do not cause more pain than does the injection of any other preparation which is painless in itself. Its action on cardiac activity and diuresis, except in one case of paroxysmal tachycardia, could always be observed within a short time and lasted at least 3 hours, and sometimes as long as a week. The author recommends the injection of strophanthin whenever a rapid action is desired, as for example in acute asystole in uremia and in infective diseases. A. K. Stone (Stone, Boston Medical and

Surgical Journal 1909, No. 8) has also obtained very satisfactory results with intravenous injections of strophanthin in conditions of collapse occurring in the course of pneumonia. If in these cases digitalis has not previously been administered, the author considers that doses of $\frac{1}{64}$ grain should be given, for in a case which received half this amount only a transitory success was obtained.

Strophanthin is relatively seldom given internally, as it does not act with sufficient rapidity, and because it occasionally has an unpleasant, irritant effect on the gastrointestinal tract. Renault, however, did not observe this action. In a case of cardiac debility he prescribed a solution of $\frac{1}{32}$ grain of strophanthin in 6 $\frac{2}{3}$ ounces of water, of which a tablespoonful was taken daily for a considerable time, without causing any undesirable *ly*-effects. Pédebidon, Barié, Catillon, Hirtz and Schneider, who in contra-distinction to the authors named above consider that the intravenous injection of strophanthin is not free from danger and is only to be used in exceptional cases, are more in favor of the internal administration of the drug. By giving correspondingly large doses, they consider that as rapid a result can be obtained by this method. Vaquez doubts this and only considers the intravenous injection to be of real value. In his opinion the cases of death attributed to the intravenous method of administration are no reason for giving up such a useful form of treatment. Liebermeister attributes these accidents to the cumulative action of strophanthin, and they can therefore be avoided if sufficient attention be paid to this effect. In threatening cardiac insufficiency $\frac{1}{96}$ to $\frac{1}{64}$ grain is given at once, but not more than $\frac{1}{64}$ grain in 24 hours, and not more than $\frac{1}{16}$ grain in 48 hours. In less threatening cases smaller doses are given at the beginning. If the patient has taken digitalis preparations before the commencement of the strophanthin medication, an interval of 4 days should be left between the last dose of digitalis and the first injection of strophanthin. It is of no use in obstinate cases to attempt to reduce the pulse rate by giving too frequent or too large doses.

The dose for injection is sufficiently clear from what has been said. As regards the internal dosage of strophanthin, probably on account of unnecessarily great caution, only small doses of 0.0001 to 0.0003 Gm. ($\frac{1}{64}$ to $\frac{1}{32}$ grain), and daily doses of 0.001 Gm. ($\frac{1}{64}$ grain) have found favor. These doses appear very small, when it is considered that the dose for in-

jection is either larger or just as large, and that the preparation acts less powerfully when administered internally.

Like most bodies of the digitalin group, strophanthin has an anesthetic action, which has, however, found but slight consideration in therapeutics. As far as I know, E. Steinach was the first to draw attention to this action, and Panas confirmed the fact that strophanthin, when applied to the conjunctiva of rabbits, produced anesthesia in a short time, and which lasted for several hours. In man, however, its application causes inflammation of the conjunctiva, so that in the author's opinion there is little likelihood of its being used in ophthalmic practice.

2. *Gratus-Strophanthin* = *g-Strophanthin* = *Strophanthin. crystallisatum* = *Ouabaïn. crystallisatum*.—*G-strophanthin* is a glucoside having the chemical formula $C_{30}H_{46}O_{12} + 9H_2O$, and is obtained from the seeds of *Strophanthus Gratus* Franch., a member of the Apocynaceæ indigenous to tropical Africa. It forms white crystals, soluble in water and alcohol, and without a definite melting point. At 15° C. it dissolves in about 100 parts of water and in about 30 parts of absolute alcohol or amyl alcohol. It dissolves with difficulty in ether and chloroform. The preparation dried at 100° C. sinters at about 185° , softens at about 200° C. and decomposes at about 215° C. with the formation of bubbles.

The preparations and properties of *g-strophanthin* were first described in detail by H. Thoms, for which reason I also place this preparation on the market under the designation "*strophanthin. crystallisatum* acc. to Thoms." With regard to the description of this preparation, I must refer those interested to the original paper by Thoms. But it may be noted that the author's investigation has proved the chemical identity of *g-strophanthin* (Thoms with ouabain (*crystallisatum*), already isolated by Arnaud from the wood of ouabaio.

Werschinin, who tested *g-strophanthin* pharmacologically, came to the conclusion that when applied dissolved in Ringer's solution, in the same concentration, it had a similar action whether administered endocardially or exocardially. The weaker concentrations cause stoppage of the heart in diastole, medium concentrations lead to stoppage in systole, while strong concentrations again cause stoppage in diastole, to which paralysis of the heart is presently associated. The concentration of *strophanthin* causing stoppage in systole varies from 1:1000 to 1:50,000, provided the poison be given dissolved in Ringer's solu-

tion. In addition, the action is accelerated by blood serum, this depends on lipoid-like substances contained in the blood serum. The occurrence of stoppage in systole is also hastened by the presence of calcium salts in the blood serum. Even in a dilution of 1:2,500 calcium chloride hastens stoppage in systole, so that doses of *strophanthin* usually having a diastolic action cause stoppage in systole. The last-named action, however, can only be observed when it is employed endocardially. A communication of Krailsheimer, according to which *g-strophanthin* has the same pharmacological action as digitoxin, is of special interest with regard to the action of *strophanthin*.

According to H. Schedel, *g-strophanthin* is of considerable therapeutic value in all debilitated conditions of the heart, such as occur in convalescence from disease, or in consequence of valvular disease and atrophy of the muscle. It accelerates the cardiac activity, has a beneficial influence on dyspnea, raises the blood pressure and increases diuresis, and assists in the elimination of edema. Even though it cannot be used to replace digitalin in severe cases, it has the following advantages over the latter: 1. It acts more rapidly, its action generally being apparent in a few hours. 2. It can, if necessary, be given subcutaneously. 3. Even when it has been employed for weeks it shows fewer unpleasant by-effects than digitalin and its cumulative properties become evident at a later period; but on account of its rapid absorption and the earlier appearance of slowing of the pulse the cumulative action can be earlier recognized and the administration of the drug discontinued in good time.

K. Hochheim reported upon the clinical tests for *g-strophanthin*, which were carried out at the Magdeburg-Sudenburg Hospital in the course of 12 to 15 months, and which permit a fairly reliable appreciation of the value of this medicament. It was prescribed as follows:

g-Strophanthin Thoms. .03—0.06 Gm. (grn. ss-j)
Syrup. Aurantii. 20.0 Gm. ($\frac{5}{8}$ j)
Aq. Destill. ad 200.0 Gm. ($\frac{5}{8}$ vj $\frac{2}{3}$)
Sig.: One tablespoonful 3 to 6 times a day.

Hochheim obtained a very satisfactory result by the use of this medication in a case of aortic insufficiency, in which digalen and digitoxin had been tried without much benefit. By taking daily doses of $\frac{1}{3}$ to $\frac{2}{3}$ grain the patient's subjective symptoms were markedly improved within the first few days of the treatment. The sensation of fear and the palpitation disappeared and the appetite returned. The pulse, which

had previously been continuously irregular, became regular within the first few days, and diuresis became normal. After the second day of treatment the urine was free from albumin. On the return of mild symptoms of congestion the use of suppositories containing $\frac{1}{10}$ grain of g-strophanthin proved satisfactory. In severe disturbances of compensation, also, g-strophanthin rendered good service.

For cardiac debility in the course of ineffective diseases, Hochheim found that g-strophanthin was more efficacious in children than in adults. Children of 2 to 3 years of age were given daily doses of $\frac{1}{32}$ grain, and those of 10 years daily doses of $\frac{1}{8}$ grain. It was not only well borne, but proved a very useful drug in the treatment of cardiac debility in scarlet fever, diphtheria, and pneumonia.

The author places the maximum single dose for adults at 0.005 Gm. ($\frac{1}{200}$ grain), and the maximum daily dose at 0.03 Gm. ($\frac{1}{33}$ grain). It is, however, better to begin with smaller doses. Larger doses may cause diarrhea with bloody stools, vomiting, a feeling of oppression, headache and drawing pains in the region of the neck.

Whereas Hochheim prefers the internal administration of g-strophanthin to its intravenous injection and also considers that the former yields better results, G. Linzenmeier came to the conclusion that the internal administration of strophanthin is ineffective in severe disturbances of compensation, unless daily doses of $\frac{1}{2}$ to $\frac{2}{3}$ grain are given for a prolonged period. The use of these doses, however, would entail the risk of cumulative action. Linzenmeier considers that the only advantage offered by the internal administration of g-strophanthin over that of digitalis preparations is that it alleviates the most distressing symptom, the dyspnea, within a few hours, whereas the digitalis preparations effect this much more slowly, in the course of 1 to 2 days. Therefore, in the author's opinion, g-strophanthin should only be given internally when dyspnea is the most prominent symptom, and then only as an introduction to a course of digitalis. It is, however, useful in less severe cases of cardiac insufficiency, in which a single daily dose of $\frac{1}{2}$ to $\frac{2}{3}$ grain may be given. Here a beneficial effect may be produced in a few hours, especially on the dyspnea, and, in certain circumstances, a single dose suffices to restore compensation. In these cases the action of g-strophanthin sets in earlier than that of the digitalis substances, but, according to Linzenmeier, it is not so prompt, so powerful or so lasting as the intravenous

injection of g-strophanthin. The intravenous injections cannot be replaced by the internal exhibition in acute and threatening cardiac debility. The results of the investigations of Fleischmann and Wjasnensky are in agreement with this statement. In the experience of these authors, immediate and life-saving results may be achieved by the intravenous injection of $\frac{1}{125}$ grain of g-strophanthin in certain cases of chronic and acute circulatory disturbances, such as are not obtained with any other drug or by any other method. But if digitalis medication has already been adopted, care is necessary. In the case of moribund patients it should not be prescribed.

Vaquez and Leconte have obtained good results, especially in pure myocarditis, by the use of g-strophanthin given intravenously in doses of $\frac{1}{125}$ to $\frac{1}{64}$ grain at intervals of 2 days, while its action in valvular lesions, particularly in aortic lesions, is apparently less pronounced. Vaquez expresses the same good opinion with regard to g-strophanthin as does Fleischmann.

Maximum Doses of the Strophanthins.—As the intensity of action of the strophanthins is much greater when injected into the circulation than when given by mouth, internal and intravenous (or subcutaneous) maximum doses should be strictly distinguished. According to the reports which have appeared with regard to the use of the strophanthins, the following may be taken as maximum internal doses:

For k-strophanthin as a single dose 0.0005 Gm. ($\frac{1}{2000}$ grain) and 0.003 Gm. ($\frac{1}{333}$ grain) as a daily dose.

For g-strophanthin as a single dose 0.005 Gm. ($\frac{1}{20}$ grain) and 0.03 Gm. ($\frac{1}{33}$ grain) as a daily dose.

But these maximum doses really require revision, as it may be assumed that the maximum dose of k-strophanthin is too small* and that of g-strophanthin perhaps rather too large†. In using the large doses it should always be borne in mind that for the sake of safety they should not be repeated on several consecutive days.

For intravenous, subcutaneous and intramuscular use, the maximum doses may provisionally be fixed as follows:

For k-strophanthin as a single dose 0.001 Gm. ($\frac{1}{1000}$ grain) and 0.001 to 0.0015 Gm. ($\frac{1}{666}$ to $\frac{1}{667}$ grain) as a daily dose.

* Hatcher and Bailly think it probable that the maximum dose of k-strophanthin, given internally, is approximately 0.01 gramme ($\frac{1}{10}$ grain) and pro die 0.06 gramme (1 grain). They consider it better for the present, however, not to make use of the latter dose. Jour. A. M. A. 1909, Vol. 52, p. 5.

† Compare Kobert, Intoxikationen 1905, 11, p. 1215.

For g-strophanthin as a single dose 0.0005 Gm. ($\frac{1}{125}$ grain) and 0.001 Gm. ($\frac{1}{84}$ grain) as a daily dose.

It may be noted, however, that the observation reported by Liebermeister is of importance with regard to the dosage of the strophanthins, namely that in febrile infective diseases larger doses of strophanthin are better borne than in afebrile diseases.

Thevetin and Thevetosin.—Blas and de Vrij have isolated a glucoside, having the formula $C_{54}H_{84}O_{24}$, from the seeds of *Thevetia neriifolia*, of the natural order Apocynaceæ, indigenous to the West Indies; they named it "thevetin." It forms colorless crystalline scales, with a bitter taste; melting point 170° C., soluble in alcohol and hot water. On hydrolysis it is decomposed into sugar and theveresin.

Thevetosin was prepared by Herrera from the seeds of *Thevetia Yccotli*. It is a crystalline glucoside, soluble in alcohol, and which, like thevetin, may be regarded as a cardiac poison. Neither substance has attained therapeutic significance. (Compare article on the glucoside "Cerberid.")

Urechites Suberecta.—The leaves of *Urechites suberecta* Jacq., a plant belonging to the natural order Apocynaceæ, were formerly used in the treatment of dropsy in the West Indies, where the plant is indigenous. The natives are also said to have prepared an arrow poison from the milk-juice of the plant. In his examination of the leaves of *urechites*, Bowrey found two crystalline bodies, *urechitin* and *urechitoxin*, and an amorphous substance, the so-called amorphous *urechitoxin*. None of these bodies has found favor in therapeutics. They cannot be obtained in the market.

In order to decide the therapeutic value of the leaves of *urechitis*, Vowinkel and Langgaard experimented with a tincture prepared from them. According to these authors, *urechitis* exhibits the same cardiac action as digitalis, and in addition, especially in warm-blooded animals, an action on the peripheral nerves, which is apparent by convulsive symptoms. The authors also found it to possess an action antagonistic to curare. But this discovery is of no practical use, because the dose of *urechitis* necessary to counteract fatal poisoning by curare is in itself dangerous to life. Minkiewicz, in his pharmacological investigations, arrived at similar results.

BE CHARY ABOUT PROMISING a cure in an operation for wandering kidney. If a general enteroptosis co-exists, fixation will not give satisfactory results.—Urologic Review.

USE AND ABUSE OF DRUGS IN THE TREATMENT OF SHOCK

E. A. Van der Veer and J. L. Bendell, of Albany, divide shock into two general types—that due to loss of blood and that where there is severe trauma without great loss of blood. The administration of normal salt solution they lay down as a matter of routine yet where there is an already crippled heart if loss of vasomotor tone is not dependent upon vascular depletion great harm may be done. Under certain conditions then the use of normal salt solution may be discarded.

When, however, it is to be given the initial dose is 750 Cc. given slowly at the junction of the second right costal cartilage with the rib, having the needle point slightly downward toward the axilla. The solution should not be cooler than body temperature. It may also be given after the drop by drop proctoclysis method of Murphy, or intravenously. According to Crile strychnine has been found of little avail. Digitalis has also been found of little use. The sheet anchors are camphor, adrenalin chloride and morphine. The camphor is used in the form of sterilized camphorated oil, given in doses of 15 to 20 minims and repeated, if necessary, where suddenly impending collapse calls for a rapidly diffusible cardiac stimulant. It must not be forgotten, however, that camphor is a renal irritant when used over a considerable period of time, and that the oily constituents of camphorated oil may not be absorbed and cause abscess. Adrenalin chloride raises vascular tone in a way almost equal to the effects of morphine as an anodyne. The dose is 15 minims every 15 minutes for four or five repetitions. Continued use produces arteriosclerosis and it is harmful in cases where there is a predisposition to pneumonia and pulmonary edema. Yet in extreme cases ten or fifteen minims may be given every hour or two after the first four or five initial administrations. Nitroglycerin does harm because of its vaso-dilator qualities. Morphine, with its rapid and wonderful power, should be used more frequently than it is. Many a life has been saved and many a one lost because the physician either did or did not administer morphine in sufficient dosage to tide his patient over the shock and nervous excitement.—Amer. Jour. Surg., Oct., 1912.

IN EMPLOYING IT in the gonorrhea of females, Fromme found gonococcic vaccine to be most successful in those cases of pyosalpinx in which the acute febrile stage had subsided and prior to the beginning of a chronic condition.—Urologic Review.

Progress in Materia Medica and Therapeutics

CHOLESTERIN IN ANEMIA

M. Roch writes that since very encouraging results have at times been obtained in severe anemias by the administration of cholesterol, its use should henceforth be indicated when cases of the pernicious type prove refractory to iron and arsenic. The substance is certain not to do harm and is by no means sure not to do good. It should be prescribed in daily doses of one to two grammes, in powder, cachets, or oily solution. In hemolytic jaundice cholesterol appears to have rendered service, though the reports have not as yet been sufficiently numerous to warrant a definite conclusion. In hemoglobinuric fever Audéout has obtained good results with large doses—up to four grammes a day; in this condition cholesterol would appear to improve the tolerance of quinine. In infections, notably tetanus and bronchopneumonia, cholesterol seems to have been of service, though less definitely so than in the conditions where protection of the red corpuscles from harmful influences was the end in view.—*N. Y. Med. Jour.*, March 8, 1913.

TREATMENT OF HEMORRHAGE DURING INFANCY

Three cases of severe bleeding during infancy came under the observation of K. Bluehdorn. The first was one of melena neonatorum in a child three days old. The stool contained very large amounts of blood and the patient appeared almost exsanguinated. An injection of 2.5 Cc. diphtheria serum was made at once and internally, 0.5 Gm. of calcium acetate were given every two hours. The results were excellent, for the bleeding stopped almost at once. The second was a typical case of Henoch's purpura showing subcutaneous hemorrhages about the fingers and feet and complicated with a pyelitis. Fresh blood was also voided from the anus. 3.8 Cc. diphtheritic serum were injected and 2 Gm. of calcium chloride were given within 2 hours. The recovery here was also uneventful and rapid. The last case was far more serious; it was one of hemorrhage from the cord with sepsis and intense icterus. Examination of the blood showed that the coagulation was much delayed. Serum was injected subcutaneously around the umbilical wound and a tampon saturated

with normal human blood was applied directly to the navel. Internally, 4 Gm. of calcium chloride were given daily. Despite the severe septic symptoms, the child recovered completely and the bleeding was checked very soon after treatment was begun.—*Berl. klin. Woch.*, Jan. 6, 1913.

EMETINE IN DYSENTERY

W. Allen, of Charlotte, N. C., publishes his experience in two cases of amebic dysentery with the emetine treatment, the value of which has been demonstrated in the tropics. His method was the same as followed there, the injection of hydrochloride emetine beginning with small doses but rapidly increasing to one or two grains or even more. The remedy seems to be absorbed by the blood and not to cause nausea or vomiting, and to succeed when the oral administration of ipecac fails to give relief.—*Jour. A. M. A.*, March 1, 1913.

IODINE IN THE TREATMENT OF HIGH BLOOD PRESSURE

S. L. Dawes, of Albany, writes that iodine in one form or another given to the point of toleration is the most popular method in the treatment of high blood pressure. In the belief that it is better borne by the digestive tract than is the potassium salt, most foreign observers prefer sodium iodide. It is important to remember in the use of iodine that it should not be administered during the period of digestion, because not only will iodine and starch produce an insoluble iodide of starch, but there are the disagreeable effects of iodine upon the digestive tract, too well known to need description. For symptomatic treatment and for immediate effect upon the hypertension, as well as for continued use over a long period, no class of drugs equals the nitrites, and of these the most frequently employed is nitroglycerin. Unfortunately the effect of the nitrite is evanescent and the appropriate dose must be repeated at frequent intervals, in order to prevent the secondary rise in blood-pressure which usually follows its primary effect. In addition, if large doses are given over a long period, we are in danger of lowering the blood-pressure to a point where the secreting function of the kidneys

is unfavorably affected. It should be stated that the dose of nitroglycerin, as well as the frequency of the dose, is many times greater than is commonly supposed. He quotes LeFevre that "in the treatment of cardiac and renal diseases, the greatest danger next to the abuse of digitalis is the unjustifiable administration of the nitrites." Not all cases where there is high blood-pressure demand or even admit a reduction of tension, for as long as cardiac power compensates for obstruction in the circulation no special treatment is needed.—Monthly Cyclopedica, Dec., 1912.

NUCLEINIC ACID IN PARESIS

J. Donath reasoning from the observations that following acute febrile and suppurative processes, improvement in the condition of paretics is often noticed, concluded that the important factors in this improvement were hyperthermia and hyperleucocytosis with increase of oxidation and metabolism, with consequent neutralization or destruction of toxins. The author believes that similar conditions may be brought about by sodium nucleinate.

The sodium nucleinate was injected in doses of 0.01 to 0.5 Gm. every second day. An average rise of temperature to 101.6° F. was observed. A sterile solution containing 2 per cent. each of sodium nucleinate and sodium chloride was used. It is best prepared fresh and at any rate should not be over two days old. A count of the white cells was always made before the injections invariably before the mid-day meal. The number of leucocytes was found as high as 61,000 with a body temperature of 106° F.; the averages were, however, 23,000 and 101.6° F. The maximum temperature was usually reached from 4 to 10 after the injection. It returned to normal in from 3 to 5 days. Intravenous injections were found less suitable than the subcutaneous method. An injection was not repeated until the temperature had become normal again. A five to seven day interval was found in the main suitable. Treatment consists, as a rule, in from 3 to 18 injections on an average 8 injections of about 1 Gm. each. In some cases a tolerance seemed to be reached as shown by stationary temperature and leucocytosis. As the author remarked in a former article upon mercurial injections in paresis, the nucleinic acid treatment is particularly indicated in early stages, in which there is no excuse for the *laissez faire* attitude.

Where there are manifest signs of syphilis and where the mercurial therapy has been

insufficiently applied, a course of mercurial injections can well precede the nucleinic acid. Flooding the system with mercury because of a positive Wassermann reaction is decried. The author gives in some detail the histories of 21 cases of general paresis which were treated by nucleinate of sodium injections. Of these, in ten cases, there was sufficient improvement to permit of the patient going to work again, in five more the patients improved sufficiently to go home without recovery of power to work. The remaining cases remained unimproved. In five of the improved cases having a clear history of syphilis, mercurial therapy had been applied in one, very intensely but without staying the course of the disease. In this case, however, nucleinic injections at once set up a change for the better. This change was marked by cessation of the tremor, quieting of excitement, improvement of memory and especially by disappearance of the severe dysarthria. Too short a time has elapsed since the beginning of the treatment to decide as to the permanence of the cure, but the author thinks that the results obtained justify a further trial of the remedy, especially since it seems devoid of danger.—Post Graduate, Jan., 1913.

URTICARIA FOLLOWING DIPHTHERIA ANTITOXIN INJECTION

D. Miltimore, of Nyack, N. Y., reports an interesting case of urticarial rash and sciatica following a prophylactic injection of diphtheria antitoxin. The patient was a young adult male of good habits, slender build, slightly nervous temperament and somewhat predisposed to rheumatism. Following a prophylactic dose of diphtheria antitoxin (500 units) four years previously he had had a very slight urticaria but no subsequent urticaria up to the present attack, and no previous sciatica.

Recently he was given a prophylactic dose of 1,000 units of diphtheria antitoxin of standard make in the right buttock. In 24 hours there was a great sharply margined edema of the buttock with elevation of temperature $\frac{1}{2}$ degree and a raising of the pulse rate about 10 beats a minute. There was a typical pronounced urticarial rash beginning in parts adjacent to the right buttock the next day and gradually extending until in five days it was universal including even the lips. The patient ached all over. There was pain and tenderness along the right sciatic nerve from the sciatic notch to the knee. On the sixth day the left side became similarly affected.

The usual local measures as well as

vigorous saline cathartics, salol in large doses, potassium permanganate, hexamethylene tetramine, acetphenetidine were all ineffective. On the eighth day all other medication was discontinued and quinine, grn. xv in divided doses was given for three days. Marked improvement was apparent at the end of twenty-four hours and all symptoms had disappeared by the end of the third day.

MAL PERFORANS TREATED WITH ZINC PERHYDROL

A severe trophic ulceration of the foot, secondary to a thrombophlebitis in a very stout patient, advanced in years, was treated by R. Mueller as follows: The wound was cleansed daily with hydrogen peroxide, diluted with twice the amount of water. By means of a spray, zinc perhydrol was then dusted upon the raw surface; finally, petrolatum, containing 10 per cent. bismuth subgallate was applied. The necrotic tissue very soon separated and the disagreeable odor disappeared and the secretion was checked almost entirely. The formation of granulations was slow and it required fully two months before the wound was entirely closed.—Deutsch. med. Woch., No. 49, 1912.

SALVARSAN IN CEREBRO-SPINAL SYPHILIS

Excellent results were obtained with salvarsan by J. Donath in the various syphilitic affections of the central nervous system. Thus, in lues cerebri there is improvement or disappearance of facial paralysis, and the paralyzes of leutic hemiplegia (in 66 per cent of the cases). The contractures disappear and the convulsions are soon checked. Writing and general muscular power will again approach the normal and the subjective sensations of pain and the paresthesiae will be alleviated. In ten cases, the psychic condition became normal, and in two there was considerable improvement. In cerebro-spinal lues, the gait was restored in 25 per cent. and there was decided improvement in the bladder and sexual functions. The general condition was usually influenced to a marked degree. In the initial stages of tabes, the patellar reflexes may return and the ataxia, Romberg's symptom, gastric crises, lancinating pains and other pains may disappear entirely. In dementia paralytica, in the beginning stages, the pupillary reaction returned in 3 out of 28 cases and the tendon reflexes in one case. In 4 cases, the gait was improved and in 11 cases the speech became more distinct. In a fair percentage,

memory and the general intelligence returned while in three cases, the patients could again return to their vocation. Mercury and potassium iodide should be used in combination with the salvarsan and in parietic dementia, it is of advantage also to employ injections of the sodium salt of nucleinic acid.—Muench. med. Woch., Oct. 22, 1912.

TREATMENT OF ACUTE TONSILLITIS

Harold Hays recommends the following treatment for acute tonsillitis: After having sprayed the throat with an alkaline antiseptic, in order to clear away the mucus, he proceeds to spray the throat with a one per cent. solution of cocaine and adrenaline 1:5000, applied especially in the tonsillar region. Finally the tonsils are touched with pure cocaine. In a few moments the crypts are opened with a crayon of silver nitrate 50 per cent., the caustic being retained in each crypt from ten to fifteen seconds. The patient is recommended to rest the following day and take a light diet, using pulverizations in the throat of a 50 per cent. solution of hydrogen peroxide; at the same time to suck ice and to maintain a compress of cracked ice around the neck. Usually the tonsillitis clears up within twenty-four hours, although it may be necessary to repeat the treatment in some cases.—Med. Times, March, 1913.

RECENT REPORTS ON LUMINAL

L. Benedek concludes that the new drug, Luminal, is an excellent hypnotic in psychic disorders, with a very wide range of usefulness. Thus, in the milder cases, it effectually replaces the bromide while in the more severe cases it can replace the powerful alkaloid hyoscine. A dose of 0.3 to 0.4 Gm. is excellent in nervous unrest and is reported not to be followed by after-effects. Even doses as high as 1.4 Gm. daily were well tolerated and the vital functions were in no way interfered with. The sodium salt is admirably adapted for subcutaneous use and the following formula is generally employed by the author:

Luminal Sodium.....5.0 Gm.
Aq. dest.....13.3 Cc.
Sig. 2 Cc. equal 0.74 cg.

In a large percentage of the cases, the sedative action was evident in 15 minutes after the injection. The sleep was of longer duration than after hyoscine and generally lasted 7 to 9 hours.

An equally interesting paper is that by

O. Geymayer who highly recommends luminal in relatively small doses (0.1 to 0.2 Gm.) as efficient and harmless in nervous insomnia. The action of the drug is also all that can be desired in senile insomnia unless the pathological changes in the brain are too far advanced. It does good service also in many of the mental affections and above all, seems to be an invaluable remedy in epilepsy. In severe cases of the latter illness, as much as 0.3 to 0.4 Gm. may be given; later, when the attacks recur with less frequency, the dose can be reduced to 0.1 to 0.15 Gm. This dose the author states can be administered for a long time without fear of untoward after-effects.—Klin.-therap. Woch., 42 & 51, 1912.

TREATMENT OF SEBORRHEIC KERATOSIS

Montgomery and Culver write that the thick crusts of keratosis on the seborrheic skin of elderly persons are best removed with the curette. After their removal the open surface should be rubbed with crystals of trichloroacetic acid or with a saturated solution of it. The results of this treatment are said to be better even than with solid carbon dioxide and as good as with the x-rays. The acid should be allowed to act until the surface becomes white, i. e., for a few minutes. The action of the acid is arrested by mopping on water.—Jour. Cutaneous Diseases, Sept., 1912.

THYROIDIN AND ASSOCIATED INTERNAL SECRETIONS WITH ARSENIC IN EYE DISEASES

S. B. Muncaster has prescribed thyroid associated with adrenal extract and sodium cacodylate in the treatment of some diseases of the eye with remarkable results. This association of internal secretions is used in a lowered state of nutrition where the ductless glands are not properly performing their functions. This condition if not relieved is very apt to lead to auto-intoxication.

When the ductless glands are diseased or destroyed more work is thrown upon the kidneys, causing albumen and casts. After treatment in a number of cases with the combination of substances above indicated, it has been found that the albumen and casts have disappeared. The depressing effect of thyroidin in the treatment of obesity may also be overcome by giving at the same time adrenal extract and sodium cacodylate.

In cases of retinitis pigmentosa and chorioiditis where these were old pigment deposits the author has noticed beneficial

effects following the administration of the following:

Thyroidin	grn. j
Gland. Adrenalis	grn. $\frac{1}{60}$
Sodii Cacodylatis	grn. $\frac{1}{200}$

—Jour. Ophth. and Otolaryngology, Oct., 1912.

TRACHOMA

W. H. Harrison, of Lame Deer, Mont., describes his experience and the treatment used among the Indians west of the Mississippi, who are sorely afflicted with trachoma. He does not find it influenced by geographical or climatic conditions and in his observation it is always a chronic affection. Of course, trachoma is best treated by prophylactic measures; hence all public towels and washbasins should be done away with in schools, almshouses, prisons, factories, etc. The surgical treatment is comprised mainly in expression, which he thinks benefits more by the increased and quickened blood- and lymph-supply it induces than by the small quantity of trachoma material removed. He finds hot applications after expression more grateful and useful than cold ones and a drop of 25 per cent. solution of argyrol or some bland oil may be put in the eye and the glued lids which are found every morning should be carefully cleansed. When this has ceased the medical treatment begins and should be kept up until the whole conjunctiva becomes normal. This may take months or years and in complicated cases the destructive effects may be permanent. After the acute effects of expression subside, in from five to seven days, and there is no further secretion, inflammation or gluing of the lids, they should be everted and the whole of the conjunctiva of the fornix and palpebral surfaces firmly and rather rapidly rubbed with a smooth pencil of copper sulphate, and this must be repeated daily to secure the best results, taking care to prevent any traumatism of the corneal epithelium. "Assuming that the true principle of the treatment of trachoma is often-repeated acute hyperemia in all the conjunctiva in which there is active trachoma, the copper stick should come in contact daily with all this surface." If thorough expression has been done properly and all secretions checked before using the copper sulphate the pain of the application will be gradually lessened and cease, but will appear again if, after having been left off, it is begun again. Copper sulphate should not be used when there is a corneal ulcer, an inflammation, iritis or acute exacerbation, until these have been allayed

by proper treatment. Lotions are not indicated and the copper stick should not be used too vigorously or beyond producing the desired therapeutic hyperemia. If a bluish-white pellicle is produced by too caustic action it should be discontinued for a few days. Ointments and lotions are not, in Harrison's opinion, as effective as the copper stick.—*Jour. A. M. A.*, Feb. 22, 1912.

TREATMENT OF PAIN IN LARYNGEAL TUBERCULOSIS

Where pain is a pronounced symptom in tuberculosis of the larynx, V. Hinsberg recommends that alcohol be injected into the trunk of the superior laryngeal nerve. The author states that two of the best drugs for local application are orthoform and anesthesin. It is not necessary that the physician apply the powder or that a special apparatus be used for an excellent anesthesia will be obtained if 5 or 6 grains be placed upon the tongue and swallowed dry. The powder will then lodge where ulcerations most commonly occur, that is, about the epiglottis and the arytenoids. The after-effects are purely local and very slight and no taste is imparted to the food. These patients can be made very comfortable in this way and do not seem to become accustomed to the drugs. A good effect was also seen in tonsillitis or quinsy throat.—*Munch. med. Woch.*, Dec. 31, 1912.

ZINC PERHYDROL IN WOUNDS AND ULCERS

Many drugs do excellent service in venereal and leg ulcers but the majority are objectional for some reason or other. Iodoform frequently gives rise to a severe dermatitis and its odor is so strong that the patients are generally obliged to remain at home. Many of the substitutes of iodoform are very expensive and much less efficient. E. Brodfeld has tested zinc-perhydrol, a white, tasteless and odorless powder consisting of zinc oxide and dioxide. The powder was applied chiefly to soft chancres, incised buboes and ulcers of the leg. In infected ulcers the healing process was no more rapid than with iodoform but clean ulcers closed in a remarkably short time. It is therefore best to first cauterize the infected ulcers with pure carbolic acid and then to apply the powder fresh daily. Dermatitis never occurs and buboes only rarely appear with this treatment. In buboes, the secretion is very soon reduced and healthy granulation tissue is formed in a surprisingly short

time. The powder is here dusted into the cavity and the wound then covered with sterile gauze. In ulcers of the leg, a cure is not so rapid owing to the disturbance of circulation yet, as a rule, the wounds close after 6 to 8 weeks.—*Klin.-therap. Woch.*, No. 36, 1912.

TREATMENT OF SUBACUTE LARYNGITIS

L. Heimann, of Evansville, Ind., writes that the predisposing causes of subacute laryngitis are essentially the same as in acute laryngitis, and the treatment must be divided accordingly into constitutional and local.

When associated with inflammatory conditions of the upper air passages, pharyngitis and rhinitis, laryngitis must be treated in conjunction therewith. The patient, when possible, must remain in a warm room, and in severe cases must stay in bed and should refrain from using the voice as much as possible.

Free evacuation of the bowels is necessary with a saline aperient, given usually one hour before the early meal, which should consist of one or more glasses of hot milk. This stimulates the glandular activity and makes the expectoration of mucus easier. Some form of ammonia is indicated in moderate doses; ammonium chloride, five grain doses, is more palatable than the carbonate. *Liquor ammonii anisatis* of the German pharmacopœia, in ten drop doses in one-fourth glass hot milk, is an elegant preparation readily borne in this condition. When a disturbing cough is present, small doses of heroine or codeine may be cautiously used. This is sometimes the key to the entire situation; by putting the larynx at rest all inflammation is allayed. Local treatment consists of applying counter-irritation over the larynx. A Priessnitz compress is very serviceable and when properly applied acts admirably, but should be used only when the patient is under complete control in the house, and it should be used only at night. The Priessnitz compress is an ordinary towel folded lengthwise until it is about three inches wide; wring out of cold water and apply directly to the neck. Cover this thoroughly with oiled silk. Over this place several thicknesses of flannel. Leave on from eight to twelve hours without removing, then give entire neck a gentle alcohol rub. These compresses can be repeated from night to night as often as indicated.

Locally any of the oily solutions should

be used in an oil atomizer. Before this the author uses an alkaline solution of

Sodii Chloridi.....grn. xv
Sodii Biborati.....grn. xv
Aque Destillatæ.....ad. 3ii
M. fiat solutio.

It must be used warm. This removes the mucus and any foreign material from the inflamed area. This is followed by an oily spray in an oil atomizer.

Mentholisgrn. x
Camphorægrn. xv
Albolene3ii
M.

This should be used every two or three hours. Some prefer a vapor solution, and much benefit can be derived by adding one teaspoonful of compound tincture of benzoin or a few drops of eucalyptol to a pint of water, over a gas or alcohol lamp or in any of the various vaporizers on the market. Often an old fashioned tea kettle serves admirably.

Constitutionally, syphilis, rheumatism, tuberculosis, etc., must be taken into consideration and treated accordingly. All alcohol and tobacco must be prohibited. The thyroid gland should receive attention, as an enlargement of this gland by pressure on the recurrent laryngeal nerves may bring about a huskiness of voice simulating a laryngitis.

Tonics should be given in some form. Strychnine, either hypodermically or internally, acts admirably in these conditions. Electricity should not be used.—N. Y. Med. Jour., March 8, 1913.

ARSEN-TRIFERROL IN ANEMIA

Arsen-triferrol, an organic combination of iron with arsenic is stated not to be decomposed in the stomach and therefore absorbed only in the intestinal tract without causing disagreeable gastric symptoms. E. Hartung writes that patients with anemia who cannot take iron in the usual form rapidly improve with this preparation, no matter what the gastric complication. The action is direct, since the bone marrow is stimulated, and also indirect, in that the appetite is increased and the patients are thus able to take more food. As a rule, there very soon is a pronounced increase in weight. The author reports excellent results in chlorosis, dysmenorrhea, anemia in children, inoperable carcinoma of the stomach, secondary syphilis, hysteria and neurasthenia. It usually makes very little difference whether there is too much or too little hydrochloric acid in the stomach; the preparation seems well tolerated by all.—Klin.-therap. Woch., No. 2, 1913.

PHENOL AND ICHTHYOL IN EXTERNAL OTITIS

R. M. Nelson, of Atlanta, Ga., reports exceedingly good results from the use of a mixture of phenol and ichthyol in glycerin in otitis externa diffusa and myringitis, otitis externa circumscripta ("furuncle of canal") and in connection with other treatment as good in acute otitis media, and especially good in otitis externa caused by complicating chronic suppurative otitis media. Tampons soaked in this solution and used as packings in connection with 2 per cent. boric irrigations were used with splendid results in a series of cases averaging from 1,000 to 1,200 per month during one year at the eye and ear clinic, Colon Hospital, Canal Zone.—Jour. A. M. A., March 8, 1913.

THE EFFICIENCY OF PREPARATIONS OF OIL OF SANTAL

An excellent way of testing the antiphlogistic properties of the various balsams is by giving the drugs to animals in which an artificial empyema has been created by the injection into the pleura of a yeast suspension. After 24 hours the animal is killed and the amount of pus which has accumulated in the pleura is measured with that recovered from a control animal. The suspension of yeast is boiled before injection and is employed in amounts of 5 Cc. The best antiphlogistic effect was obtained by J. Pohl with the pure oil of santal and with gonosan. Some of the other preparations and calcium chloride showed very little effect. Gurjum balsam, which is frequently employed to adulterate the oil of santal was virtually inert. Good results were also obtained with the preparations of kawa kawa.—Therap. Monatshefte, Dec., 1912.

TREATMENT OF INFECTION WITH OXYURIS VERMICULARIS

The treatment of infection with oxyuris vermicularis would be very simple if it were not for the constant danger of reinfection from the anus and its surroundings. B. Hildebrand recommends that the anal region be thoroughly cleansed with soap and water after every defecation and that the parts be then anointed with a salve containing camphor, quinine and thymol. Before every meal, the hands should be thoroughly scrubbed with soap and water. In this way, the infection generally terminates in two to three weeks and no irritation about the anus is seen as with mercurial and silver nitrate salves.—Muench. med. Woch., Jan. 21, 1913.

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EDITOR'S NOTES

The Action of Digitalis

THE irregular action of digitalis in cardiac insufficiency is well known. In many instances the effect is very evident in that the subjective symptoms vanish, the amount of urine excreted increases and the amplitude of the pulse becomes higher while the frequency falls. Digitalis usually shows this desired therapeutic effect in the weakened condition of the heart muscle which has developed subacutely within a few weeks in mitral lesions and arteriosclerosis and which is accompanied by dyspnea, enlargement of the liver and edema.

In other cases, the toxic effects of the drug are evident only too early; the pulse becomes excessively slow after a few doses or nausea appears too soon. In a third series of cases the drug seems to be altogether ineffectual. Excluding the hopeless, final stage of heart disease, this is seen particularly where only one chamber of the heart is insufficient. Thus, in the weakness of the right ventricle of pronounced mitral stenosis, tricuspid lesions, emphysema or kyphoscoliosis, usually accompanied by extreme stasis of the venous system and in the rapidly developing insufficiency of the left ventricle of pure or nearly pure aortic insufficiency with pronounced dyspnea and no venous stasis, there will generally be little or no therapeutic effect. The same applies to severe overstrain of the heart, acute cardiac diseases after infec-

tions and the cardiac insufficiency of obesity.

Finally, there are cases where the effect is all that can be desired but where the free flow of urine is soon checked while the pulse remains slow and strong. Here, combination of digitalis with one of the diuretics of the purin group (diuretin, theocin) is often indicated.

Prof. Ernst Romberg of the University of Munich (Muench. med. Woch., Jan. 7, 1913) discusses the interesting question whether the cardiac rhythm will explain the varying behavior of digitalis in all these cases. It has been known for some time that the drug exhibits its best effects in the so-called perpetual arrhythmia seen so often with mitral lesions and usually caused by a fibrillation of the auricles. In a large percentage of cases of "auricular fibrillation" the pulse slows very promptly after digitalis medication. The disturbance of the rhythm as such cannot, however, be responsible for the brilliant therapeutic results, for in the perpetual arrhythmia of arteriosclerosis and coronary sclerosis the effect is not nearly as satisfactory. The same may be said in reference to extrasystoles. In incipient cardiac insufficiency, they generally disappear after digitalis, but in the purely nervous and much more distressing forms, relief is usually not experienced from this form of medication. It may therefore be safely stated that the type of arrhythmia does not explain the action of digitalis.

It is of greater importance to observe the rhythm carefully while the drug is being given, if undesirable after-effects are to be avoided. A slowing of the transmission of impulses from auricle to ventricle will generally contraindicate further medication since digitalis lowers the conductivity in the auriculo-ventricular bundle. The true bigeminal pulse seen so often in perpetual arrhythmia of mitral lesions is also a sign that the patient has had enough digitalis. Similar disturbances of transmission which may be present before the drug has been given do not contraindicate its use, however, for the transmission of impulses through the bundle may be improved if the heart action becomes more satisfactory.

It seems that the dynamic condition of the heart muscle is of greater importance than the character of the arrhythmia. The best effect is therefore seen in severe circulatory disturbances. But the drug is also indicated in the earlier stages of cardiac insufficiency. Rest and dietetic measures will often accomplish the desired result here but with digitalis, the patient will improve

much more rapidly. The dyspnea on exertion, the slight swelling of the ankles in the evening and the disagreeable oppression in the chest will often disappear promptly. Excellent results are also seen in the persistent bronchial catarrhs which are hardly influenced by expectorants. When no improvement follows, the case should be studied carefully to make more sure that the proper indication for the use of digitalis is present. Thus, nothing can be expected in disturbances resulting from defective nutrition, in cerebral arteriosclerosis, in thyreotoxic conditions or in functional neuroses. Digitalis is also out of place in fully compensated heart lesions.

The poor results seen in some cases are probably to be explained by the fact that digitalis, while it increases the work done by the heart, cannot increase the supply of energy so that a pressure, higher than before, cannot be overcome. In this way the failure of the right ventricle to overcome the increased pressure in the pulmonary circulation in mitral stenosis can be understood. It is also likely that a more careful study of the elasticity of the heart muscle with digitalis will clear up many problems.

In all cases, the condition of the arteries must be investigated. In all probability, the lumen of the peripheral vessels is not altered by the drug. The intestinal vessels are probably contracted with fair doses while the renal vessels dilate. The latter are rendered more sensitive in the presence of renal disease and the dilatation is always much more marked in diseased than in normal kidneys. A vaso-constrictor action may occur, however, with large doses of digitalis and in acute stasis of the renal vessels. The use of diuretin in many of these cases will again start the free flow of urine.

The choice of a proper preparation is of the greatest importance in obtaining the desired effect. The infusion, if brought directly into the intestines will act more promptly than the powder. In the stomach it causes considerable irritation, so that the powder here acts more promptly. Some preparations, like digipuratum, are freed from most of the principles which irritate the stomach, hence are passed into the intestines more quickly and are absorbed more rapidly.

According to some authors digitalis does not act properly where it is apparently indicated because absorption in the portal system is much delayed owing to severe congestion. In such cases the intravenous injection of strophanthin is often followed by prompt relief. To avoid a cumulative ef-

fect, 10 to 14 days should be allowed to elapse since the last digitalis medication and the initial dose should be small ($\frac{1}{4}$ milligram). The dose may be repeated no sooner than after 48 hours and if necessary, as much as $\frac{3}{4}$ milligrams may be employed.

In every case of heart disease treated with digitalis the medication should be discontinued from time to time to avoid a cumulative effect. A cumulative effect is common to and characteristic of all potent extracts and an absence thereof probably means that the preparation is feeble in action.

Atropine Reaction In Heart Disease

Talley, in discussing the prognostic significance of the atropine reaction in cardiac disease, writes that the throat dryness and impaired vision resulting from $\frac{1}{16}$ to $\frac{1}{8}$ of a grain hypodermically, soon passes off without any other untoward effect. This method of releasing the vagus action, and of comparing the effect on normal and diseased hearts, led to the use of the reaction in the study and treatment of cardiac disease, and showed its prognostic significance in cardiac cases, especially auricular fibrillation, and how it may be used in the study of digitalis action, since it was found to be unusual for cases giving small reactions to respond well to digitalis. Patients with rheumatic mitral disease developing auricular fibrillation with rapid pulse-rate, gave large atropine reactions, the pulse-rate, with the vagal influence abolished, depending upon either stimulus production or conduction. Cases of auricular fibrillation show marked slowing under digitalis, many small beats disappearing, the remainder being more even in height and the diastolic pauses more regular. Under atropine many of the small beats reappear at the expense of the diastolic pauses as the pulse accelerates. The atropine reaction in the normal heart is probably from 30 to 40, and a reaction of 20 or less, in a heart not recently subjected to exhausting disease, points to degeneration of the cardiac muscle, and makes the chance of improvement under treatment unpromising. Cases of auricular fibrillation, with responses normal or above, are promising subjects for treatment, two reactions, one before and one on full digitalis, enabling a determination possible as to whether the vagal or the cardiac tissue factor is the greater. Those cases with a large cardiac tissue factor are usually the ones sufficiently improved by treatment to return to their occupations.—*Amer. Jour. Med. Sciences*, Oct., 1912.

Prescriptions

Artificial Epidermization:

The following is spread on the wound with an insufflator, and covered with a dry sterile dressing. In three days the granulations are cauterized with silver nitrate, and dressed with simple ointment.

Amidoazotolueni 3j
Zinci-Perhydrolis 5ij
Bismuthi Subnitratiss 5x

Erysipelas of Face:

In severe inflammation with oozing and supuration it is better for the first day or two to apply dressings moistened with a 1 to 10 or a 1 to 20 solution of ichthyol, applying the pure ichthyol at a later stage. In an ointment it is not so active and should only be used in cases with little inflammation. The following may be used when the inflammation has disappeared:

Ichthyolis 5ss
Zinci Oxidi 5ij
Adipis Lanæ 5ij
Paraffini Mollis ad 5j

Misce. F. ung.

The following cream may be substituted:

Amyli 5j
Zinci Oxidi 5ij
Adipis Lanæ
Paraffini Mollis āā 5ij
Liq. Hydrogeni Peroxidi 3ss

Misce. F. cremor.

Should any telangiectasis persist, the following ointment will be found more effective:

Sol. Adrenalini Hydrochloridi
(1 to 1000) 5ss
Zinci Oxidi 5ij
Adipis Lanæ 5ij
Paraffini Mollis ad 5j

Misce. F. ung.

—Castaigne and Fernet.

Enlarged Lymphatic Gland:

Ung. Hydrargyri
Ung. Belladonnæ
Ung. Iodi
Petrolati āā 5ij

M. Ft. ung.

Sig.: Apply on lint.

Acne:

Ichthyol-Sodii grn. v-vijss
D. tal dos. No. 60 in caps. gelat.
Sig.: One or two capsules after meals.

—Jessner.

Seborrhea:

Sulphuris Præcip grn. xv
Resorcini grn. x
Acidi Salicylici grn. x
Petrolati ad. 5ij

Verruca:

Acidi Salicylici
Acidi Lactici āā 5ss
Collodium Elast 5v

Renal Dropsy:

The following has been recommended to increase the perspiration. It is, however, contra-indicated in cardiac dropsy or pulmonary edema.

Pilocarpinæ Hydrochloridi grn. j
Aque Cinnamomi f. 3j
M. Sig.: Teaspoonful once or twice daily.

Otorrhea:

Ichthyolis
Aque Destillatæ
Glycerini āā f. 5ij

M. Sig.: After thoroughly syringing the ear with warm chamomile tea, allow 4 to 8 drops to run into ear.

Quinine Anesthetic:

In operations upon nose and throat in children or individuals who show an idiosyncrasy toward cocaine, Chavenne employs the following formula:

Phenolis
Mentholis āā 2.0 Gm.
Quininæ Hydrochloridi 1.5 Gm.
Adrenalin 0.005 Gm.

This will form a syrupy fluid, which when applied in small amounts upon mucous membranes will give rise to a satisfactory anesthesia. Cauterizations and small operations can be performed without any pain. The combination is not caustic, since menthol is known to counteract the caustic properties of phenol. The presence of quinine considerably increases the anesthetic effect, though quinine alone was unsatisfactory.

—Klin. therap. Woch.

Migraine:

Lactopheninæ grn. xl.
Caffeinæ Citratæ grn. xv
M. Div. in Pulv. No. v.
Sig.: One powder as needed.

Chronic Enterocolitis:

Argentii Nitratis grn. j.
Acidi Nitrici Dil. ℥xv
Mucil. Acaciæ f. 3ss
Aque Cinnamomi ad. f. 5ij
M. Sig.: Teaspoonful, diluted, every three or four hours.

Gastralgia:

In recurring attacks of gastralgia Van Valzah recommends the following:

Codeinæ grn. ijss
Ext. Cannab. Indicæ grn. j
Atropinæ Sulphatis grn. 1-20
Aconitinæ grn. 1-40
M. Div in caps. gelat. No. x.
Sig.: One capsule every four or six hours.

Chronic Bronchitis:

Copaibæ
Syr. Tolutani āā 5iv
Spt. Etheris Nitrosi f. 5j
Aque Menth. Pip. f. 5ij
M. Sig.: Teaspoonful every four hours.

Angina Pectoris:

Fol. Digital. Pulv. 0.1 Gm.
Caffeinæ 0.2 Gm.
Diuretini 0.5 Gm.
Morphinæ Hydrochloridi 0.005 Gm.
M. f. pulv. D. tal dos. No. v. in caps.

Sig.: One capsule at time of paroxysm, another capsule one-half hour later, if necessary.
—P. C. Franze.

Chronic Intestinal Catarrh:

For chronic intestinal catarrh in infants of one year and upward Ljaschento recommends the following:

Tannalbin 0.3 Gm.
Guaiacol. Carbonatis 0.05 Gm.
Pulv. Doveri 0.005 Gm.
Sacchari 0.2 Gm.
M. f. p. D. tal dos. No. xv.

Sig.: One powder every three hours (5 or 6 times during the day).

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects.

The Cause of the Persistence of Gonorrheal Vulvo-Vaginitis in Children.—J. R. Rubin and J. S. Leopold write that the cause of the persistence of gonorrheal infection in children is due to a number of factors. The close proximity of the portals of entry and the tender mucosa and epidermis result usually in a more violent and extensive invasion. Once started, the infection practically develops as in a closed tube. This is not due to the valve-like closure made by the hymen, but to the construction of the perineum, and the external and internal genitals. Each segment of the vagina from the most superficial to the deepest part serves as a valve to dam back the discharge. This is due to the fact that the vaginal walls are in close contact and do not permit of natural easy drainage. Crypts and adhesions in which bacteria lodge form in the vaginal mucosa. The vaginal portion of the cervix shows the deepest changes and is at the same time in the most disadvantageous position for drainage and for treatment.—*Amer. Jour. Diseases of Children*, Jan., 1913.

Broncho-pulmonary Cancer.—Rénon points out that modern therapeutic and surgical methods have modified the outlook in the case of many neoplasms which at one time may have seemed incurable; and although in broncho-pulmonary cancer a definite cure may be the exception, provided an early diagnosis of the malady is made, life may be prolonged and rendered tolerable. Until quite recently the ordinary clinical procedures of percussion and auscultation yielded discordant results. Radiography, however, facilitated diagnosis in some of these cases, but not in all, as it is often difficult to determine the exact nature of the affection from the shadow, pulmonary syphilis and tuberculosis both being possible complications. Bronchoscopy gives more precise results, and in this connection the author formulates four stages in diagnosis—the clinical stage, the radioscopic stage, the bronchoscopic, and the bioscopic. He relates the case of a patient, aged 51, who was first attacked by a feeling of oppression in the chest. This was attributed to arteriosclerosis, but, in spite of treatment directed to securing hypotension, the condition persisted. There was severe cough, but auscultation revealed only some bronchial râles. Soon after there was complete aphonia, and a laryngoscopic examination showed complete paralysis of the left vocal cord. Aneurysm was suggested, but negatived; and although radioscopy showed enlarged mediastinal glands there was no tuberculo-reaction. The Wassermann reaction was also negative. Bronchoscopy was then carried out, and revealed a state of intense tracheitis, while on the left bronchus was seen a reddish growth, which bled readily. The growth was flattened and spread out. Microscopic examination of a portion of the growth showed it was epitheliomatous. Removal was impossible, as it was not pediculated and had evidently infiltrated. Sulphate of radium was given by injection, and under

its influence the bronchitis diminished, and the blood-stained expectoration became less, as did the dyspnoea. This treatment was continued for a time, but fresh symptoms of compression appeared, accompanied by rapidity and irregularity of pulse. Selenium was now tried on account of its liquefying action on new growths, being injected twice a week intramuscularly. The symptoms became more and more urgent, however, and the patient succumbed. In the author's view the therapeutic benefits of selenium have still to be determined. Leinhartz, the author states, has practiced partial pneumectomy in some of these cases. The new growth is generally primary.—*Brit. Med. Jour.*, Dec. 21, 1912.

School Diseases.—E. O. Jordan, of Chicago, discusses the question whether diphtheria, scarlet fever and measles are properly to be considered as school diseases. There is much, he says, to favor the opinion that they are. All that we know about diphtheria indicates that children taken from the family and introduced into a much larger group run an increased risk of infection. While the slate, the the drinking-cup and the common roller towel are passing away, enough chance of exchange of infection exists in the friendly exchange of pocket-handkerchiefs, lip-moistened lead pencils, chewing gum, etc. A danger especially difficult to avoid is the discharge of minute droplets from the mouth or nose in sneezing, coughing, etc. There can be no doubt that school attendance favors the transmission of disease. The real point is the importance of school infection as compared with other sources and to learn the real proportion of school-contracted cases. Here opinions differ. Some claim that the increase of the disease at the autumn school opening and a like definite decrease on the closing are really due to coincidental seasonal influences. Close analysis of statistics is thought to support this view. Kerr in London and Chapin in Rhode Island hold this opinion as regards diphtheria and scarlet fever, and Jordan's own study of the statistics in Chicago seems also to favor it. Other investigators have reached opposite conclusions. Such observations are full of sources of error. The incidence of diphtheria and scarlet fever seems to be influenced by age. Both diphtheria and scarlet fever cases in children grouped according to age gradually increase in number up to four or five years of age and then begin to fall off. Other factors operating in early life and disappearing later may have to be considered, and in some degree may be replaced later on by the dangers of school attendance. In other words, scarlet fever and diphtheria would perhaps be much rarer were it not for school attendance. Conditions may not all be alike in infectious diseases. Measles and scarlet fever seem to stand on a somewhat different footing and measles seems to be regarded as due to school infection; but few exact statistical studies have been made. More work in this line is needed. Scarlet fever seems to be less generally considered a school disease. The theory of milk infection is supported by many investigations. Our lack of knowledge as to the specific causes of scarlet fever and measles robs statistics of much of their value and leaves very much to conjecture. Diphtheria stands on a very much different footing in

this regard. The facts we have might be supposed to enable us to better understand the problem, but here also wide differences of opinion exist. Jordan reviews some of the opinions of authorities and seems to favor the view that the school may be an agent in the transmission of the disorders. The part played by the healthy germ carrier must be taken into account in some obscure cases and variance in the virulence of the germ and in susceptibility of children must also be allowed for. He recommends searching and careful investigations be taken up by the National Educational Association under expert supervision of the question of the spread of these three diseases and the methods of their prevention. In point of fact we do not know at present to what extent the various influences summed up under school attendance are factors in the dissemination of infectious diseases, and the question should be investigated.—*Jour. A. M. A.*, Feb. 8, 1913.

Manganese Poisoning.—L. Casamajor, of New York, describes a syndrome observed by him among some workers in a separating mill connected with a large mine from which zinc is the principal product. Eighty-five different ores are found in this mine. One ore, a sesqui-oxid of zinc, iron and manganese, comprises 54 per cent. of the ore body. Willemite, a silicious oxid of zinc, forms 21 per cent.; rodenite, silicate of manganese, forms 9 per cent. and the red oxide of zinc 4 per cent. The remaining 81 ores make up the other 21 per cent. in varying quantities. Lead and arsenic may be absolutely excluded as causative agents. Arsenic is absent and only very minute amounts of lead are present. In the separation of the crude ores the magnetic ones are removed by very powerful electro-magnets in a dry state and further separation is done by a specific gravity method under water. The dust question is an important one, and, in spite of all the efforts to eliminate it and regulate the washing and changing of the clothes of the men, there is still a great deal in the air. Nine cases of poisoning have been observed and form the material for this paper. The symptoms are practically the same in all cases. They are principally marked festination, with sometimes stiffness and pain of the legs and intention tremor. About half the patients have defective hearing not due to middle ear disease. Asynergia is present in all the wellmarked cases. There is never any rest tremor of the limbs. Sensibility is preserved as well as muscular power. The blood never shows the changes characteristic of lead poisoning. The speech in some of the patients is somewhat slurring. The urine and spinal fluid examinations were negative in cases where made, as was also the Wassermann reaction in five of the patients. The face has somewhat the mask-like character seen in paralysis agitans. There are no characteristic mental symptoms, though one patient showed defective intelligence, which has improved. One patient died of pneumonia and came to autopsy, and no characteristic gross changes were observed except large perivascular spaces in some of the basal ganglia of the brain. No patients have recovered. Casamajor does not think that zinc can be held

responsible, and the cases resemble most those reported by Embden in workers in a manganese dioxide grinding-mill. He sums up his paper with the following conclusions: "1. This is a definite pathologic condition, recognizable by a definite symptom-complex. 2. It is a pathologic condition of the central nervous system affecting principally the mechanism of walking and equilibrium. 3. It cannot be placed under the heading of any known central nervous system disease. 4. It is of toxic origin, and in greatest probability the toxic agent is manganese."—*Jour. A. M. A.*, March 1, 1913.

Burnam's Test for Formaldehyde in the Urine.—B. F. Jenness, of Portsmouth, N. H., gives the results of experiments made with Burnam's test for formaldehyde in the urine. His interest in the subject was aroused by the article of L'Esperance on the results of the reaction as tested in the Massachusetts Hospital. His own results are different in many respects from those of L'Esperance. Burnam's test consists in a color reaction in the urine of persons who have taken hexamethylenamine. The technic is given by L'Esperance as follows: "To about 10 Cc. of suspected urine in a test-tube at body temperature is added: (1) of solution phenylhydrazine and hydrochloric acid (.05 per cent.), three drops; (2) of solution sodium nitroprusside (5 per cent.), three drops; (3) of saturated solution sodium hydrate, a few drops poured along the side of the test-tube. As this latter solution diffuses throughout the urine in the tube, if formaldehyde is present (or the urine is positive), a deep purplish-black color is seen, quickly changing to dark green, gradually getting of a lighter shade of the same color, and finally pale yellow." When there is no formaldehyde in the urine a reddish color appears, changing to light yellow. The average time of appearance of the drug in the urine is about one hour after ingestion. It continues from four to six hours with its maximum at two hours. Jenness followed the same technic on two groups of men, one hundred each. The first group were given 10 grains at 6 p. m. and a second dose at 6.30 the following morning, and the urines were examined at the end of five hours. The second group received 20 grains at 6.30 a. m. and the urines were examined at the end of two hours. The reaction in every case took place immediately, but varied slightly from those of L'Esperance. The deep purplish-black is not constant. In many the color was not a deep purplish-black, but purple changing to a green (not dark green), and finally to a pale yellow. A rather constant diagnostic point in the positive urines was the striking rapidity of the color formation and a peculiar method of diffusion through the upper strata of the fluid, going down in jets, as it were, from the top and diffusing in the lower strata. In the negative urines the test agreed in the main with those of L'Esperance, except that the end reaction was a greenish-yellow. In the first group of 100, 42 per cent. of the urines were positive and 53 per cent. were positive in the second group, the total percentage in the 200 together being 47.5, or 5 per cent. less than that reported L'Esperance.—*Jour. A. M. A.*, March 1, 1913.

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Miscellany

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THE MIKADO AND HIS DOCTOR.—It is a curious story that comes from Japan, by way of Paris, to the effect that the physician who attended the late Emperor during his last illness is being ostracized by his fellow countrymen because he has not imitated the example of General Nogi and joined his imperial master in the realms of the departed. There is this difference between the two cases: Nogi killed himself as a sign of personal devotion to his sovereign; the doctor is being urged to do likewise because he failed to preserve the life of the Emperor. But the doctor appears to have accepted modern civilization, in our understanding of the term, while the adherents of the old regime still cling to the ancient customs of their race, while living in an era which is supposed to have replaced the old. Moreover, if the cable quotes him correctly, the Emperor's medical attendant is bold enough to say that the etiquette of the court and the willfulness of his imperial patient so limited his scope of action that he is not to be blamed for the fatal termination of the case. It is impossible for any one in the West to enter into and comprehend fully the Oriental point of view, or to understand the fine distinctions which are drawn by the Japanese between the social obligations and rules of conduct which are still binding upon them and those which have been discarded. The law of Japan has ostensibly superseded the ancient system of feudal chivalry, and has expressly forbidden the practice of self-destruction, yet the almost universal acclaim of the heroism and devotion of Nogi and his wife which followed their suicide revealed how deep-rooted are the principles of old Japan, and how thin in places is the veneer placed by the era of Meiji upon the customs and guiding theories of life which characterized the nation before the dawn of modern Japan. Western sympathy will be altogether with the unfortunate doctor, who, skilled in his profession and blameless under the scrutiny of his own conscience, refuses to heed the ingrained prejudices of the nation, and elects to live down the disapproval of his neighbors.—Ledger.

THE COST OF DESTROYING LIFE.—There is always something fascinating about striking statistics when they appear to present truth in a more tangible and concrete form than do the glittering generalities of an argument. The conservation commissioner of the Equitable Life Assurance Society, Mr. E. E. Rittenhouse, is authority for the statement that the sum of \$1,500,000,000 is a low estimate of the annual economic loss from preventable deaths. The experience of Colonel Gorgas and his sanitary corps in the Panama Canal Zone is, as we have said, a convincing demonstration that good health is a purchasable commodity and that sickness can be insured against

and prevented if the public is willing to pay enough for safeguards. The cost of accomplishing the wonderful saving of lives on the Isthmus is estimated at about \$2.43 per person annually.

In contrast with such figures, which compare favorably with familiar per capita expenditures for fire and police protection and the conservation of material property, are the data relating to the cost of the actual destruction of mankind. According to President Jordan of Stanford University it now costs on the average about \$15,000 to kill a man in modern war, and in the Boer War this expense ran up to nearly \$40,000. When it is recalled that in a time of peace we spend nearly a million dollars a day in our own country on matters concerned with past or future wars, it is comforting to believe that the saving of human life is far cheaper than its destruction.

We have no desire to discuss the merits of the proposals for universal peace or to become partisans in a propaganda which lies outside the sphere of medical journalism. There is merit, however, in the suggestion that nations can afford to do their duty in preparing against a foe like the plague, the danger of which is always present and more ominous than war, quite as well as they can raise funds for defense against unlikely or avoidable human combats. It is perhaps an optimistic exaggeration to hold with Jordan that no infectious disease would long exist if we made adequate quarantine provision. We scarcely know all of the enemies or their insidious ways well enough yet to make it possible to fight them successfully in this fashion. But civilized nations show a lack of perspective, to say the least, when they continue to destroy life at high cost and fail to save it though a combination of knowledge with a little national energy and international co-operation would lead the way to humane economics.—Jour. A. M. A.

NEWSPAPER INFORMATION.

"I've fallen in love with the salt water bathing. It feels wonderfully refreshing here below the equator."—Correspondence in Des Moines Capital.

"Mrs. J. L. Park left for Paris to-day, where she and her husband, from whom she has been separated for some months, will again take up the battle of life."—Oakland, Ill., Messenger.

"On account of the crowded condition of our columns, a number of births and marriages were postponed last week."—Bloomfield, Ind., Democrat.

"Madame Stringfield, the expert corsetier, will arrive this afternoon from Huron, where she has been demonstrating the Gossard corset for a week back."—Yankton Press.

"Wanted—Nurse to take charge of two boys, experienced, between thirty and forty."—Chicago Tribune.

GIL BLAS ON HIGH LIVING.—B. M. Randolph presents an extract from "Gil Blas," the masterpiece of Lesage, the French novelist of the eighteenth century. The latter depicted in Dr. Sangrado a type both comic and serious, whose advice on the results of high living is practically in accord with present-day teachings, particularly in reference to the production of arteriosclerosis and premature senility.

"Away I went, therefore, for Doctor Sangrado," says Gil Blas, "and brought him with me, a tall, withered, wan executioner of the sisters three, who had done all their justice for at least these forty years. This learned forerunner of

the undertaker had an aspect suited to his office; his words were weighed to a scruple; and his jargon sounded grand in the ears of the uninitiated. His arguments were mathematical demonstrations; and his opinions had the merit of originality. After studying my master's symptoms, he began with medical solemnity: 'The question here is to remedy an obstructed perspiration. Ordinary practitioners, in this case, would follow the old routine of salines, diuretics, volatile salts, sulphur and mercury; but purges and sudorifics are a deadly practice. Chemical preparations are edged tools in the hands of the ignorant. My methods are more simple, and more efficacious.' 'What is your usual diet?' 'I live pretty much upon soups,' replied the canon, 'and eat my meat with a good deal of gravy.' 'Soups and gravy!' exclaimed the petrified doctor. 'Upon my word, it is no wonder you are ill. High living is a poisoned bait; a trap set by sensuality to cut short the days of wretched man. We must have done with pampering our appetites; the more insipid, the more wholesome. The human blood is not a gravy. Why, then, you must give it such a nourishment as will assimilate with the particles of which it is composed. You drink wine, I warrant you?' 'Yes,' said the licentiate, 'but diluted.' 'Oh, finely diluted, I dare say,' rejoined the physician. 'This is licentiousness with a vengeance. A frightful course of feeding. Why, you ought to have died years ago. How old are you?' 'I am in my sixty-ninth year,' replied the canon. 'So I thought,' quoth the practitioner; 'a premature old age is always the consequence of intemperance. If you had only drunk clear water all your life, and had been contented with plain food, boiled apples for instance, you would not have been a martyr to the gout, and your limbs would have performed their functions with lubricity. But I do not despair of setting you on your legs again, provided you give yourself up to my management. The licentiate promised to be upon his good behavior.'—Old Dominion Jour. Med. and Surg.

GOOD ENOUGH FOR HIM.—An old colored barber is responsible for this gem: When asked if he favored the abolition of capital punishment, he replied: "No, sah, I don't. Capital punishment was good enough fo' my fo'-fathers, an' it's good enough fo' me."

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SCIENCE AND THE OCCULT.—Professor Grasset, in his recent work, "The Marvels Beyond Science," has very ably covered the field of inquiry generally known as psychical research, and has with no slight success separated the wheat from the chaff—and there is much chaff. Science is ever extending its boundaries, however, and the "occult" of yesterday, as Professor Grasset puts it, "becomes the scientific fact of to-day." In the reclamation of this territory medicine has begun to play, and should continue to play, an important part. Already many phenomena which formerly were attributed to "the evil eye" have entered the domain of science, and now belong to what we call "the psychoses." Animal magnetism has become hypnotism; the divining rod, the turning of tables, and a certain number of mediumistic phenomena—all these have ceased to belong to "the occult." Professor Grasset excludes from his survey any consideration of the supernatural, which, as he points out, lies in the domain of theology, not in that of biology. The miraculous, strictly so called, is in his view neither scientific nor prescientific. The difficulties encountered in the investigation of the occult are great, one of the chief being that these phenomena cannot be reproduced at will, and that it is almost impossible to submit them to the strict tests of the laboratory. Professor Grasset divides the psychism of the human mind into what he calls the hyperpolygon or upper centers, and the polygonal or lower centers of activity, corresponding, we suppose, to what are ordinarily understood as the superliminal and subliminal consciousness of Myers. In normal circumstances both these centers act in consonance. In sleep, however, we have an example of physiological hyperpolygonal disaggregation, but whereas the upper center is quite unconscious, the polygon remains active to a variable degree, and being uncontrolled by the hyperpolygon has free scope. In normal sleep these activities are purely sensory, resulting in what are known as dreams. In the waking state "absent-mindedness" is another example of polygonal independence.

Professor Grasset holds that the condition of affairs in hypnotic or provoked sleep is precisely analogous. The polygon of the hypnotized person, being cut off from the supervision and control of the hyperpolygon, is readily affected by suggestion on the part of the conscious mind, or hyperpolygon of the operator. It becomes, there-

fore an automatic obedience to the idea suggested, affecting equally the motor or sensory centers. The motor activities of the polygon, indeed, may embrace every form of conscious motor activity, and although automatic and unconscious, are equally regulated and co-ordinated. The familiar phenomenon of "table turning" may be explained in this way. A medium, according to Professor Grasset, is a "person whose polygon is more active and more easily exteriorized than that of others." In such persons polygonal life and activity is notably intense, "while, further, they possess great power of hyperpolygonal disaggregation." With regard to their alleged power of calling up the spirit of the great departed, or assuming temporarily the personality of these, we can only say that the conversation supposed to have been carried on by the shades of Shakespeare and other immortals pay no great compliment to our ideals of those great minds. Wundt, indeed, with a touch of sardonic humor, bitterly complains of the deterioration undergone by the spirits of the mighty dead. "They talk," he says, "exactly like idiots!" If the sublime hope of a survival after death is ever to be ratified by science, it will not be by such means. It would, indeed be better, as Dr. Grasset says, to give up wishing for a future life, if we have to share it with such individuals.—Brit. Med. Jour.

A MATTER OF RELATIONSHIP.

Two chance acquaintances from Ireland were talking together.

"An' so yer name is Riley?" said one. "Are yez any relation to Tim Riley?"

"Very dishtantly," said the other. "Oi wus me mother's first child, an' Tim was the twelfth." —Ladies' Home Journal.

COCAINOMANIA AND ITS TREATMENT.—A true cocainomania, which in the present instance might be taken as differentiated from the cocaine habit in that it embodies the elements of a more or less sudden craze, has developed in some parts of France, particularly in Paris and Lyons—a true epidemic, according to André Lautheaume in "Revue de thérapeutique" for December 15, 1912. Until recently alcohol, morphine, ether, and a few other agents predominated as psychic intoxicants; at present cocaine leads them all, owing, it is believed, to the ease with which it may be taken—no syringe, no painful needle pricks, no marks on the arms, etc.—while the pleasurable sensations sought are obtained without a relatively prolonged stage of habituation. Briefly, a mere

snuff containing cocaine in suitable quantities suffices for all purposes. This class of cocaine habitués may be readily recognized by their frequent sniffing, their tremors, and the habit of "bug hunting" in the skin of their hands and arms in obedience to abnormal sensations or paresthesias caused by the drug. Hallucinations, phantoms, and a sort of delirium of persecution complicate marked cases and render the victims querulous and frequent visitors to the police stations. A curious symptom is a predilection for rapid progression; the automobile is a boon to these patients, unless, as frequently happens, they overlook the cost—another cause of trouble with the police, leading often to incarceration in an insane asylum. The nasal cavities sooner or later show a characteristic lesion; necrosis of the septum due to the denutrition caused by the constricting action cocaine has on the local arterioles.

Fortunately, appropriate treatment, when carried out judiciously, soon brings about a cure. An essential feature is removal of the patient from the environment in which the pernicious habit was acquired and sustained, to a place where cocaine cannot be obtained openly or surreptitiously. Attempts to carry out these measures at the patient's own home practically always fail; an asylum alone affords the necessary facilities. Sudden suppression is better borne by these patients than by morphine habitués. When the morbid phenomena are not intense, the patient showing for example but slight dyspnea, palpitations, insomnia, psychic depression, and anxiety, they promptly disappear under complete abstinence, and are replaced by a voracious appetite, followed by an early resumption of normal health. When, however, the case is an advanced one showing cardiac, pulmonary, or renal lesions, abrupt abstinence may entail general collapse, syncope of cardiac origin, and depressive psychic phenomena, melancholia, etc., of a very severe type. Here the dose of cocaine allowed should be only gradually reduced, and the patient meanwhile protected against the foregoing complications. The cardiovascular system especially should be watched and the normal *vis a tergo* of the blood stream sustained with caffeine or sparteine. Quinine is also helpful and may be advantageously given with iron if, as is often the case, anemia is present. The stubborn insomnia which tends so severely to depress the nervous system should be met by the use of trional or other agents which do not depress the circulatory or respiratory system. A most efficient means against the tendency to collapse is a nutritious diet; this the

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patient soon learns thoroughly to appreciate provided the meals are tempting and to his taste. Small quantities of easily digested food at short intervals are to be preferred. At the end of two weeks, the symptoms due to abstinence will have disappeared. Constructive metabolism should now be favored by means of warm baths, physical exercise, massage, and actinotherapy.—N. Y. Med. Jour., Jan. 25, 1913.

MAKE IT A ROUTINE PRACTICE to examine the mouth of every skin patient, for it often happens that interesting mouth lesions exist unsuspected by the patient.—Urologic Review.

THE ARMY MEDICAL OFFICER IN ANCIENT TIMES.—Sir Henry Morris notes that in times as remote as that of the siege of Troy army doctors were held in the highest esteem. The two sons of Æsculapius, Machaon and Podalirius, were, according to Homer, very important persons in the Greek army. A stir was made in the third great Trojan battle when Paris, "the spouse of Helen, dealing darts around," struck Machaon in the right shoulder. The wounded surgeon was carried off the battlefield by Nestor in the old warrior king's own chariot; and Achilles, sulking in his ship, having watched the progress of the battle, sent Patroclus to inquire what had happened. It was when describing these events that the poet exclaimed:

"A wise physician skilled our wounds to heal
Is more than armies to the public weal."

Amidst all the greatest heroes of the Greek army—Agamemnon, Ajax, Ulysses, Achilles, and many others—Machaon was always spoken of as "the great Machaon," as in the following lines from Pope's translation of the Iliad:

"Of two famed surgeons, Podalirius stands
This hour surrounded by the Trojan stands;
And great Machaon, wounded in his tent,
Now wants that succor which so oft he lent."

In the sixth and fifth centuries, during the wars of Persia with the Asiatic States, Darius I. (521-485 B. C.), the "King of the whole civilized world," and "the King of kings," as he called himself, as well as his successors, had Greek physicians and surgeons in their suites. In the accounts of the wars of the Persians against the Greeks we read of the physician Ctesias of Cnidus as being for seventeen years (414-398 B. C.) in the service of the kings of Persia. Ctesias is specially remembered, not as constantly accompanying Artaxerxes II. (404-359 B. C.), but as being a great historian, like Herodotus or Xenophon of the Persian wars. The Persians, to their honor, conducted their wars with great humanity, and treated their prisoners with kindness, and in many instances even with liberality and favor.

Philip, an Acarnanian, was physician and surgeon to Alexander the Great, and accompanied him through his Asiatic wars. There is an interesting story told of them. When Alexander was lying seriously ill at Tarsus a letter reached him warning him that Philip had been bribed by Darius III. to poison him. Having read the letter, Alexander handed it to Philip to read, and after doing so swallowed a potion which Philip had prepared for him. This proof of the unshaken confidence of the king in his physician was soon followed by Alexander's recovery.

In the second century of the Christian era the illustrious Galen was specially summoned by Marcus Aurelius to be with him in his campaign in northern Italy.—Brit. Med. Jour.

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THE RECKLESSNESS OF OLD AGE.—The press reports of the last few weeks of the life of the late Whitelaw Reid, Ambassador to England, afford but another illustration of the anesthesia which seems to settle upon the mental faculties of many people of advanced age who have always led an active life, rendering them incapable of placing any proper estimate upon their reserve strength and vitality.

The health of Mr. Reid had been seriously undermined for a considerable number of months, but with his natural vigor there is little doubt that had he possessed a realizing sense of the importance of his taking reasonable care of himself he might have eventually recovered his normal poise and led a semi-retired life of comfort and satisfaction for a considerable period of time.

There seems to be a certain fatalism to which even the broadest minds are not immune. Notwithstanding his advanced age, Mr. Reid struggled on, subjecting himself to the heavy physical tax to which a public man is always liable. What reserve he had was naturally frittered away and the end of the struggle was inevitable.

Had the patient been a man of ordinary standing no doubt the physicians would have asserted themselves and laid down the law to such a degree as to change the history of the case. It is reported that Napoleon in a family crisis instructed the more or less overawed physician to forget that royalty was to be considered at all and to treat the case exactly as though the patient belonged to the peasantry. If the man of wealth could receive the same offhand advice from the family doctor which the motorman on the street car would get the chances for recovery would often be very much improved.—Monthly Cyclopaedia.

IN A STUBBORN LEG ULCER it is well to try the effect of zinc ionization before condemning it as "chronic."—Urologic Review.

ICHTHYOL AND ITS SUBSTITUTES.—Ichthyolammonium, more briefly designated as Ichthyol, the water-soluble organic sulphur preparation, has during the last few years incited the manufacture of quite a number of similar preparations which have been claimed in the manufacturer's prospectuses as being equal to Ichthyol. The many independent investigations made however, have demonstrated the decided differences, they exhibit, not only among themselves, but toward Ichthyol.

The recent investigations by H. Beckurts and H. Frerichs (Arch. d. Pharm., 1912, Nos. 6 & 7) also give results for the substitutes which are far from satisfactory. Besides Ichthammol, Ichthium, Ichthyat, Isarol, Petrosulfol, Pisciol, and Subitol, the authors subjected also 7 samples of Ichthyol to an accurate chemical investigation, embracing the determination of the dry residue, total sulphur content, sulphate sulphur, total ammonia, and the ash remaining after combustion, the methods employed being given in detail.

The results obtained with the various preparations are reported by the authors as follows:

"On comparing the results obtained with the various preparations, it is seen that the composition of the various samples of ichthyol is uniform, apart from the inconsiderable differences in dry-residue content. The greatest difference calculated on dry residue was, total sulphur content 0.6%, sulphate sulphur 0.12%, sulphonic sulphur 0.35%, sulphidic sulphur 0.55%, total ammonia 0.16%, and ammonium sulphate

0.5%. It is scarcely imaginable that in the manufacture of a preparation of such complex composition, a greater uniformity could be achieved. The notable differences found by v. Hayett among different samples of Ichthyol could not be confirmed by us. If we inquire as to the cause of the decided differences we have found between the composition of the substitutes and Ichthyol, and between the various substitutes themselves, it may be stated that they are due chiefly to the use of raw oils with but a slight content of sulphidic sulphur, as well as to the use of raw oils of most variable composition. The action of all these preparations is unquestionably due to the sulphidic sulphur, for, as is well known, Unna, who was the first to study the action of Ichthyol as a water-soluble organic sulphur preparation, stated when he introduced Ichthyol in therapy, that this preparation exhibits a special sulphur action, that this action is due to the large quantity of combined sulphur contained in the raw material from which Ichthyol is made—the Seefeld raw oil—and that this sulphur is present in sulphidic form, in which form it is also present in the finished preparation. Whether the method of manufacture also exerts an influence is less easy to answer. The existing patent specifications gives but incomplete information on this point. As, however, so many differences are observed between the substitutes and Ichthyol, it may be assumed that the mode of manufacture of the latter also played a part. Hence it is proper, considered from the pharmacist's and the physician's point of view, that the substitutes should each bear its own name—Ichthammol, Ichthium,

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Ichthynat, Isarol, etc.—that thereby the necessary differentiation between the individuals of this group of sulphur preparations may be had. For, as our investigations have shown, it is improper, in view of the varied composition, to designate the substitutes as being equivalent to Ichthylol or ammonium sulphoichthylate, or to state that one substitute is equivalent to another.

However justifiable may appear at first glance the repeated wish to incorporate Ichthylol in the Pharmacopœia, because it is so widely used in therapeutics, it must nevertheless be observed that many difficulties would be encountered in so characterizing Ichthylol that its identity and constant composition could with certainty be established. Thus the descriptions given in the Italian Pharmacopœia, 1902, and in the British Pharmaceutical Codex, 1911, can not suffice to properly identify a preparation of such complex composition. For instance the Italian Pharmacopœia requires neither a qualitative nor a quantitative sulphur determination, while the British Pharmaceutical Codex confines itself to the statement that the bituminous shale affords an oil containing about 10% sulphur. As our investigations have shown, however, the quantity and form of combination of the sulphur varies greatly in the different preparations. It is hence also inadmissible, in view of the insufficiency of such tests, to characterize all these preparations as being equivalent to each other.”—(Pharm. Ztg., Lvii, 1912, p. 864.)

MANY A DISTRESSING FRONTAL HEADACHE may be relieved by reducing the hypertrophy of a middle turbinate, preferably by streaking with trichloroacetic acid.—Amer. Jour. Surg.

VACCINATION AND ANAPHYLAXIS.—J. H. Barach of Pittsburgh calls attention to the exceptional cases where vaccination causes only slight or no local reaction, but when repeated elsewhere later goes through its usual course. He finds that most physicians have had experience of one or two such cases, and records three instances in which after revaccination the original site went through the ordinary course or showed symptoms of doing so. In one case after exposure to smallpox the old vaccination scar showed signs of irritation. He discusses the nature and cause of vaccination and reasons out an explanation for this phenomenon on the theory of anaphylaxis. The other possible explanations, such as auto-inoculation, Finger's superinfection, Neisser's *Umstimmung* and the torpid reaction form in syphilis described by Noguchi, as well as the Moro bilateral reaction of tuberculin, are all forms of local reaction which may be also considered in this connection. The anaphylaxis observed sometimes with the use of tuberculin is also mentioned by him. All considered, however, the best explanation of the lighting up of the first vaccination in these cases is that of local anaphylaxis. “The first inoculation results in the production of antibodies against the strange virus substance; it sensitizes the organism. At the second inoculation the virus, wherever deposited, is attacked by the antibodies, and in this attack certain “by-products” are let loose. These “by-products” act as poisons and produce the anaphylactic reaction. In this case the reaction is limited to local manifestations. In other instances, when the dose is large or when the protein and antibody are diffused throughout the organism, the anaphylactic reaction is constitutional.”—Jour. A. M. A.

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WHEN A LARGE AMOUNT OF PUS can be aspirated from the ear the suppurative process has extended beyond the tympanum, and mastoid operation is indicated.—*Amer. Jour. Surg.*

THE COAGULATION OF THE BLOOD.—The frequency of the occurrence of thrombosis in disease, especially in typhoid fever, as has been recently pointed out, has attracted the attention of the practitioner to a phenomenon which has always had the greatest interest for the physiologist. It is pretty generally accepted that fibrin formation and the coagulation of the blood are brought about by the action of thrombin upon fibrinogen in the presence of soluble calcium salts. Fibrinogen and calcium salts are considered to be normal constituents of the plasma, but the source of the thrombin is at present a matter of controversy. Bordet and Delange have recently published (*Annales de l'Inst. Pasteur*, Vol. xxvi, pp 657 and 737) the results of several very interesting experiments designed to throw some light upon this question. They worked with blood taken from animals, chiefly monkeys, and came to the conclusion that the process of coagulation takes place somewhat according to this description: Upon contact with foreign substances or injured epithelium there suddenly appears in the plasma a substance (serozyme) which reacts with cytozyme to produce thrombin.

The cytozyme is produced by many of the tissue cells, by leucocytes, and to the greatest extent by the blood platelets. It can be extracted from any of these cells and such an extract may take the place of the cells in this reaction. Cytozyme is very resistant to heat, withstanding a temperature of 100° C. without destruction. It seems to exhibit a low grade of specificity in that it frequently acts better with the plasma of the animal from which it was obtained than with that from some other species. They also found that a neutral solution of peptone was able to take the place of cytozyme in the production of thrombin. This is very surprising, for if an animal be injected with peptone the coagulability of its blood is enormously reduced. The serozyme appears to be a much more mysterious substance. The authors believe that it does not exist preformed in the serum, but that it suddenly comes into existence when the need arises. Its source is wholly unknown. It is thermolabile, being destroyed by a temperature of 55° C. If the serum be shaken with barium sulphate and centrifuged it is found

that the serozyme has been absorbed by and precipitated with it. Plasma that has been treated with oxalate and then recalcified contains no serozyme, at least none that will functionate. Oxalate prevents coagulation by removing the soluble calcium salts that are necessary for the union of thrombin and fibrinogen. Citrates and concentrated salt solutions, on the other hand, interfere with the reaction between the serozyme and the cytozyme. If thrombin is permitted to form in some way or is added afterward clotting proceeds in a normal fashion.

If the results thus obtained outside the body can be considered comparable to those occurring within the body, and if these observations can be verified, then we have been advanced a long step forward in the understanding of this most important process. Further reports of this work will be awaited with interest.—*Med. Record.*

TO MAKE LASSAR'S PASTE LESS STICKY, it may be mixed with an equal part of lanoline.

ANAPHYLATOXINES AND ENDOTOXINES OF THE TYPHOID BACILLUS.—The existence of preformed poisonous substances in the cell bodies of bacteria has long been considered a satisfactory explanation of the toxic phenomena witnessed in various infections, especially typhoid fever and cholera. There have, nevertheless, remained a number of diseases, such as those caused by anthrax bacilli, streptococci or staphylococci, in which this, the endotoxine theory of Pfeiffer, has proved totally inadequate by reason of the fact that no toxic substances could be obtained from the bodies of these organisms. Recent work by Friedemann and Friedberger has led to a suspicion that the assumption of specific endotoxines in any of the bacteria is quite unessential to a comprehension of bacterial toxemias in general. These investigators have shown that by treating cells and bacteria of various kinds with specific antibody and complement, nonspecific acutely toxic substances are produced. To these the term "anaphylatoxines"—owing to the virulence of their effects upon injection into experimental animals—has been applied.

In the February issue of the "Journal of Experimental Medicine," Hans Zinsser of Stanford University records the results of a study of this problem with special reference to the typhoid bacillus. Not only were the findings of previous experimenters confirmed, but it was ascertained in addition that exposure of the bacilli to blood

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serum for as long as fifteen hours at 37.5° C., instead of destroying the anaphylatoxines once formed, yielded a higher degree of toxicity than after shorter periods of exposure. It became apparent that a complement action of considerable vigor is required to obtain from the typhoid organism any appreciable yield of anaphylatoxine, and that the poison, once formed, is more stable than that produced from other organisms. All this leads Zinsser to suggest that the conditions prevailing in the body infected with typhoid germs are, at the height of the disease, ideal for anaphylatoxine production, since vigorously sensitized bacilli in large numbers are under the prolonged influence of considerable quantities of complement. An anaphylatoxine thus appears to play an important rôle in typhoid toxemia.

In his experiments with the so-called "endotoxines" or preformed toxic bodies in typhoid bacilli, the author found that the conditions produced by the injection of extracts and filtrates of the bacillus—diarrhea, hemorrhages into the serous surfaces and large intestine, and protracted symptoms—differed considerably from the acute illness with rapid death or recovery caused by anaphylatoxine poisoning. He, nevertheless, feels that the participation of endotoxines in typhoid toxemia has not been proved, and believes it not improbable that all the phenomena witnessed represent solely a protracted or subacute state of anaphylatoxine poisoning.

The important bearing of these studies upon the pathogenesis of typhoid fever and its complications can hardly be overestimated. They suggest also that in certain toxemias the very immunizing process, instead of protecting the organism, tends to aggravate the morbid phenomena—an additional plea to the multitude in favor of preventive medicine.—N. Y. Med. Jour.

SHAKESPEARE'S ALLUSIONS TO SYPHILIS.—Sir Henry Morris states that there is ample evidence that during the Tudor and the Stuart and Commonwealth periods of English history syphilis was rampant in England as well as in France and Italy. It is sufficient for proof to quote Shakespeare in regard to the first, and Wiseman in reference to the latter periods. The word pox reminds one of the frequent use Shakespeare made of it. It occurs at least four or five and twenty times collectively in fifteen of his plays. He

used it as a curse, or an imprecation of impatience or evil. Thus, Iago says to Roderigo, who talked of drowning himself: "A pox on drowning thyself." Sir Andrew, in "Twelfth Night," referring to a certain knight who was a celebrated fencer, says: "Pox on't, I'll not meddle with him." In "Measure for Measure," Barnardine in his prison exclaims: "A pox on your throats! Who makes that noise there?" In "Love's Labor Lost" we find even ladies of quality—ladies in attendance on the Princess of France—making similar exclamations, such as "A pox of that jest!" In "All's Well That Ends Well" a French lord in a camp near Florence says of a soldier: "Let him fetch off his drum;" and he is answered by another French lord: "A pox on't, let it go, 'tis but a drum." In "Two Gentlemen of Verona" the servant of one of the gentlemen says to him of the other: "A pox of your love letters." In "Henry IV," in "Hamlet," in "Cymbeline," in "The Tempest" and other plays there is similar employment of the word, which is equivalent to the "Damn" or "Damn it" of the present day. This use of the word seems to prove conclusively that syphilis was very common in Shakespeare's day, and that the constitutional and local symptoms of the disease must have been quite familiar to the man in the street and to the ordinary person in society. It is quite obvious from the context of several of the passages in which the word occurs that it was the great-pox and not the small-pox which had given it currency and to which allusion was made. For example, in "Pericles, Prince of Tyre," the virtuous Marina, the daughter of Pericles, who had been taken captive by pirates and sold to a brothel keeper, is cursed in the following manner by a Pander of the Bawd, for not yielding her honor on the solicitation of the customers: "Now the pox upon her green sickness for me!" And the Bawd replies to him: "Faith, there's no way to be rid on't but by way to the pox." Shakespeare was quite alive to the pains of periosteal nodes, to tendon gummata, to ozena, to the loss of hair, to the voice changed by syphilitic laryngitis, and to the sallow, withered look of the skin of the face in late syphilis. He speaks of "a pox of wrinkles," and the makes Timon tell Phrynia and Timandra, in language which shows a considerable knowledge of the characters of secondary and tertiary syphilis:

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 And mar men's spurring. Crack the lawyer's
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 Down with it flat; take the bridge quite away
 Of him, that his particular to foresee
 Smells from the general weal; make curl'd-
 pate ruffians bald;
 And let the unscarred braggarts of the war
 Derive some pain from you. Plague all;
 That your activity may defeat and quell
 The source of all erection."

—Proceedings of the Royal Society of Medicine.

SEA-BATHING, though often contraindicated in cases of eczema, may generally be safely indulged in by the psoriatic.—Urologic Review.

WASSERMANN TEST.—The material, technic and results of the use of the Wassermann tests, of which over ten thousand have been made at the Army Medical School Laboratory, are given by C. F. Craig of Washington, D. C. It has been the practice in the army to control the treatment of syphilis by this reaction, so that repetitions of the test have been made on a large number of individuals. The method employed is a combination of the Wassermann and the Noguchi methods, following Wassermann in the employment of an extract of syphilitic fetal liver as an antigen, and in inactivating the serum to be tested; and Noguchi in using a hemolytic system, the amboceptor consisting of the serum of rabbits immunized to human erythrocytes. In reporting the tests he uses the terms double plus ($++$), indicating absolute inhibition of hemolysis; plus-minus ($+—$), indicating any degree of inhibition below 50 per cent.; and negative ($—$), indicating complete hemolysis. Tables are given showing the general results of ten thousand tests in 5,216 individuals and the interpretations of these results in the primary stages of syphilis, and the results are given in detail in this as well as in the secondary and tertiary stages and in later conditions, in congenital syphilis and after treatment for the disease. As regards the specificity of the test, he says the negative reaction in suspected tertiary cases is of value in excluding the disease only when persistent and without the development of typical symptoms. In latent cases the percentage of positive results is high, though the double plus reaction is not so often obtained. A plus reaction in the absence of other symptoms, with a clear history of infection, and after specific treatment for some time, is diagnostic of syphilis. In the absence of other symptoms a plus-minus reaction should arouse suspicion when there is a clear history of infection; but a positive diagnosis should only be given after several tests. After treatment a double-plus reaction should always be taken as indicating the need of further treatment. While the test may be positive in some cases of leprosy and yaws, and a weak positive reaction may occur in some other diseases, he regards this as of not much practical importance. Yaws and leprosy can be easily diagnosed clinically, and in the rare cases of positive tests in cancer, scarlet fever and sepsis a latent infection cannot always be excluded, and a double plus reaction he considers as significant of syphilis. A diagnosis of syphilis should never be made from a plus-minus reaction alone, as this can be obtained at times from normal individuals. A single negative reaction is of no value in excluding syphilis; only repeated negative examina-

tions for at least a year will suffice. The history of the case, the history of the symptoms and the amount of specific treatment must all be considered. In conclusion he remarks on the factors which may influence or invalidate the test. No dependence can be placed on a negative Wassermann reaction in subjects who have ingested considerable amounts of alcohol within twenty-four hours. The serum for the Wassermann test should be collected under aseptic precautions, as Craig has been able to show that certain strains of streptococci and staphylococci, when growing in normal serum, are capable of producing substances that may give rise to a positive result with the complement-fixation test. While this may be rare in actual practice, it is of enough importance to require the use of aseptic methods in collecting and keeping blood for the Wassermann test. For this reason the test should be made in properly equipped laboratories and by experts in the work.—*Jour. A. M. A.*, February 22, 1913.

A WELCOME ANNUAL CALLER.—"Indispensable to the General Practitioners," "Cannot do without it," "Don't forget me," are only a few of the comments E. B. Treat & Company have received from those renewing their subscriptions to the 1913 International Medical Annual, \$3.50, which has just been published.

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NEVER NEGLECT to obtain the consent of the parent in writing, before commencing treatment of scalp ringworm with X-rays in a child.—Urologic Review.

EFFECTS OF COMPRESSED AIR.—Dr. Leonard Hill's investigations on the subject of compressed air sickness extend over a period of fifteen years, and their comparison with those of Continental workers, notably Paul Bert, has resulted in a volume entitled "Caisson Sickness." The author gives a graphic account of the evolution of deep-sea diving, and does not fail to note the important landmarks established by his predecessors. He lays stress upon the valuable experiments of Haldane and Priestley, which prove that "the effect of CO₂ on the breathing depends on the partial pressure and not on the percentage of this gas in the air breathed." From this it follows that whatever the pressure a diver is under he requires the same volume of air measured at that pressure. It appears that compression up to four atmospheres is not in itself to be feared. It is, indeed, better tolerated than rarefaction. The results of sudden decompression may be very serious, and include aphasia, paraplegias, myalgia and Menière's syndrome complex. In his study of the pathology of the condition, the author points out that air embolism of the arteries of the spinal cord is the most constant lesion, because in fatty tissues the circulation is relatively poor, and they absorb much more nitrogen than water. The air bubbles are more numerous in the dorsal and upper lumbar cord than in the lumbar enlargement, where circulation is active. In connection with caisson working Dr. Hill makes the valuable suggestion

that to prevent the air becoming too warm for efficient work it might be dried by passing it over trays of granulated fused calcium chloride before compression. The process, he states, is both economical and effective. The method of decompression is fully discussed, and as the result of many experiments on his own person Dr. Hill is convinced that the time necessitated for decompression can be much shortened by using in turn every muscle and joint, and by changing position frequently. This is an important point, as the time lost in decompression is considerable. The "stage" method appears on the whole to be the best for use in caissons. With regard to treatment nothing is so efficacious as recompression, but it is important that this should be carried out quickly to prevent permanent damage to the tissues by the air emboli. A recompression chamber ought to be available in all important deep-sea diving work. The book is a most valuable contribution to this important subject, and although highly technical in parts, one does not need to be a profound physiologist to appreciate and enjoy it.—*Brit. Med. Jour.*

THE SYPHILOPHOBIC PATIENT is a terror to his physician, though he is less often mentally affected than the phtheiriophobic.—*Urologic Review.*

SURGICAL SHOCK: ITS PREVENTION.—In major operations, absolutely essential for the eradication of malignant diseases, the removal of neoplasms and similar shock producing procedures, occurring in individuals afflicted with advanced organic, cardiac and arterial disease, by subjecting such to a course of digalen treatment for from 4 to 6 weeks, circulatory equilibrium is established upon a sufficiently firm basis to enable these cases to withstand serious operations successfully.

In the impending collapse, during major operations the injection of from 2 to 4 Cc. of digalen after a few minutes cessation of operative procedure, has rendered it practicable to successfully terminate an otherwise fatal operation. So marked have been the results following this especial use of digalen that I have almost become routine in its administration in anticipating and preventing, to a large degree, surgical shock in major operations.—H. Beates, Jr.

THE QUARTZ LAMP AS A MEDICINAL APPLIANCE.—The recognition of light as a natural healer of diseased tissue and a tonic to tired organs has not only led the medical profession to an entirely new method of treatment, but has induced scientists to search for new sources of light rich in the healing properties of the sun.

The sun bath has been universally recognized as a valuable healing factor in various ailments and its action has been proved to lie not in its heating effect, i. e., in the red rays, but in the invisible ultraviolet rays. Above the vapor zone of the earth which absorbs these rays the sunlight is particularly rich in these rays. In consequence the alpine sanatoria are able to produce far more favorable results in diseases of the lungs and skin, ulcers, etc., than can be achieved in the plains.

Several new sources of light have been discovered more or less rich in these active rays, which, however, were either too complicated and expensive, as the Finsen Light, or too weak in their action, as the Iron Arc and the Uviol Lamps.

The discovery of the Quartz-Mercury lamp by Dr. Kuech, of the firm of W. C. Heraeus, G. m. b. H., provided a source of light in every way supplying the required properties. The light of the Quartz Lamp is produced by the radiation from mercury vapor heated by the electric arc in an evacuated vessel of fused quartz to utmost incandescence. This light is particularly rich in active ultraviolet rays to which the fused quartz of the burner, unlike glass, is transparent. Further, the high melting point of quartz allows the mercury vapor to be brought to a very much higher temperature than is possible in the case of glass burners, thus raising the intensity of the light and the economy of the lamp in a very marked degree. (Hanovia Chemical & Mfg. Co., Newark, N. J.)

ONE SHOULD ALWAYS REMEMBER that the action of a drug varies in intensity in salve, paste or lotion form.—*Urologic Review.*

VAGINAL DISCHARGES.—In many instances vaginal discharges persist for the reason that no energetic local measures are taken to combat the causative condition. Thus, in vaginitis, of either specific or non-specific origin, if local applications in the form of tampons soaked in an antiseptic solution of positive value were employed in a systematic manner, relief would follow. In this connection the more than ordinary value of Ethol (Battie) in vaginal discharges may be mentioned. In vaginitis, used on tampons, it exerts its germicidal influence on the causative organisms and brings about a gratifying relief from the annoying features accompanying the vaginitis. Ethol will also be found of much service in cervical erosions.—(Battie & Co., St. Louis, Mo.)

CALCIUM STARVATION is the last of the systemic conditions under investigation by modern scientific dietetics. Excess or deficiency of lime salts has been blamed for all kinds of diseases—indeed there was once quite a fad in that direction, so the literature is voluminous. Yet every time we have apparently found a true indictment someone has rushed to the defense with evidence establishing an alibi. There is so much lime in the ordinary foods it is difficult to believe the small amounts in the drinking water have any effect one way or the other. Yet it seems to be proved by a German dentist that dental caries is less frequent in places where there is plenty of lime in the water. Perhaps other coincident factors have been overlooked. Caries was once quite definitely correlated with diseases which affected the child at the time those teeth were developing in the gums—long before eruption. We cannot settle such problems offhand, as there are too many factors in nutrition and development. To work on only one at a time warps us, so that we may ignore more important ones. Rickets, for instance, has many remote causes—even heredity has been blamed—and yet many believe lime deficiency in the food to be the sole cause. As for blaming such deficiency for tuberculosis, we had better go slow. We need have no fear of boiled water when typhoid is threatened. The few grains of lime deposited by the heat are made up in a glass of sterile milk—and besides boiling does not throw down all the lime.—*American Medicine.*

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SCIENCE AND PRACTICE IN MEDICINE

By Beverley Robinson, M.D., of New York

It seems a popular idea to-day, more than ever, that science should stand foremost in the practice of medicine and knowledge, fruit of long and wide experience, give place to the newer outlook of the present generation. It may be, that some of the older physicians in their aspiring time, were familiar practically, with what was done with the microscope, and in the chemical laboratory, when they were young, or even of mature years. Of course, as the years come and go, so do many things in scientific research. Many methods formerly employed in our then very small and imperfect laboratories, are no longer used. Bacteriology indeed, in its entirety, is comparatively, a wholly new science—nevertheless, its discoveries are already great and startling. Because of this, however, all that it shows, does not of necessity, remain lastingly true and valuable. Much of it, sooner, or later, will go, as it were, to the scrap heap of things ignored, or forgotten—and other and more novel procedures and findings, will become fashionable, be frequently talked of, and fill columns of our daily papers.

Wise conservatism in science and practice is, alas, never popular with the multitude. Few are so constituted that they think well of it. The majority believe it is evidence of decay, senility, crass ignorance, or foolish scepticism. Is this justified as a rule, by wise interpretation of facts, born largely, of age and experience? For one, I do not believe it is.

Only the other day, I was witness, thanks to the courtesy of a very able and high-

minded practitioner and scientist, of the careful demonstration of the latest, most perfect, in a practical sense, electrocardiograph. In connection therewith, or separately, I saw Lilienstein's instrument to hear and differentiate heart tones. Both instruments and especially that of Nicolai, as modified by Dr. E. F. Huth of Berlin, impressed me very much by their accuracy and simplicity, embodying as they do, the most advanced knowledge and attainment applied to cardiac research. I would add that I was even more impressed by ingenuous modesty and personal effacement, of the great and conscientious physician and worker, who was showing the improved instruments to a few among his associates and pupils, whom he felt could and would appreciate his remarkable kindness and consideration. Such as he, are always very busy men; every moment of time is valuable. It might be so in a merely pecuniary way. To them, this consideration is always relatively small. Science, truth, progress, research, are higher and nobler aims—all enlisted, as far as may be, in the service of humanity, without money and without price.

How compare such men with others? Alongside, but far different, are those who with talent and initiative, are more desirous to achieve notoriety than to advance science with an unselfish spirit. They get their reward no doubt, but they surely lose the confidence and admiration of their peers. The pity of it!

There are also, men who are excellent practitioners—experienced, sound, judicious and who have a very appreciative sense of good, scientific work, but who lack the special mental qualities to pursue it with success, individually—or indeed, they would if they could, but are hampered by

insufficient means. They feel they must simply grub, work for money, and support by practice family and self.

Of course, there are always a large percentage of the "profanum vulgus,"—who neither know, nor care for, science in medicine. Are science and practice incompatible *per se*? Surely not, or they should not be so regarded from the higher—many times (I grant) from the idealist standpoint. It is true, however, that very rarely are they combined in great measure. Somehow, the qualities which make a man a good observer and practitioner at the bedside, do not fit him seemingly, to do his best work with newer physical instruments of research. At least it so seems to me—as I look backward, and as I regard the youth in my profession, who are working and striving for, and with, what to them, is best. Now then, what lesson may we learn from what precedes? Essentially this—each man should be estimated according to his real value, and his special aptitude, or capability—men are not alike in brain or figure. Indeed, no two are similar. When one seeks however, for the physician to care for him in his bodily needs, he should aim to secure the services of the one who while utilizing science so far as is desirable, and often with the aid of others better equipped, should have that love and practical insight of disease, and above all of its judicious care and treatment, that is the sovereign rôle of the great practitioner and must never be abdicated.

GLYCEROPHOSPHATES*

PHOSPHORUS and its compounds form an essential part of all organic life. Plants require phosphates from the earliest period of their germination, and seeds contain a plentiful supply of these salts. Phosphorus compounds are contained in every vegetable cell. These enter the animal and human organism in their vegetable food, and there in the form of nuclein, lecithin, cerebrin, the phosphoric acid of meat, etc., they play an important part in the life of the cell and of the entire organism. When these substances are split up, the phosphorus appears in the urine in the form of alkaline and earthy phosphates. It is well known that it was first prepared from urine by Brand (1669), Kunkel (1678), and Krafft (1667). Later, Lavoisier (1772) recognized its elementary character and described its property of combining with oxygen to form phosphoric acid. When the identity of

phosphoric acid and its salts became known, their importance in the physiology of plant and animal life was soon recognized. The bones especially were found to be very rich in phosphates. At the present time, besides the phosphates occurring in the mineral kingdom (apatite, phosphorite, wavellite, meadow-ore, and others) the bones of animals constitute the chief source for the technical extraction of phosphorus. How rich the bones are in phosphoric acid is apparent when we consider that the skeleton of an adult yields 1200 to 1500 grammes of phosphoric acid; this is present in the bones in the form of the tri-calcium phosphate.

The importance of the metabolism of phosphoric acid was first recognized by the constant presence of phosphoric acid salts in the urine. A normal adult excretes 3 to 4 grammes of phosphoric acid in the urine daily. This is chiefly derived from the vegetable food, and is partly a product of decomposition of nuclein and lecithin. Such decomposition is said to occur, for example, as a result of muscular exercise, as stated by Mosler and Lehmann.

Others assume that phosphoric acid is also liberated from its organic combination by increased nervous exertion. Thus Mairét regards the alkaline phosphates present in the circulation as a product of cerebral activity; this might be possible considering the high proportion of lecithin contained in the brain, but would be difficult to demonstrate. Mairét's view agrees with the findings of Mendel, Vanni and Pons, in that these investigators noticed a diminution in the excretion of phosphoric acid in those suffering from chronic brain disease. A diminution in the excretion of phosphoric acid was also found to occur in other diseases, such as arthritis, diabetes, acute atrophy of the liver, renal disease, acute infective diseases, etc. Its usual occurrence in pregnancy is easily explained by the fact that the fetus requires a large amount of phosphates for the formation of its bones. The excretion of phosphoric acid may also be increased, an occurrence known as phosphaturia; the cause may be found in digestive disturbances, fatigue, recent fever, nervousness, softening of the bones, etc. In cases of this kind the amount of phosphoric acid contained in the urine may be increased up to 9 grammes a day.

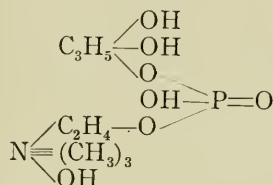
As regards the therapeutic use of phosphoric acid and its salts, this can be traced back far beyond the period when phosphorus was discovered, and the origin of its administration in the form of bone-ash cannot be stated with certainty. Phosphates

*E. Merck's Annual Report, Vol. xxv.

were certainly used empirically in therapeutics at an early period. After the phosphates had been discovered with the help of chemistry, and their use in the economy of the organism made manifest with the aid of physiology, the pure salts of phosphorus were more used, and later the element phosphorus itself. But after a time it was observed that the inorganic compounds of phosphoric acid had a relatively small influence on phosphoric acid metabolism; this is due chiefly to the slight extent to which they are absorbed and made use of by the organism. If, for instance, sodium phosphate is injected subcutaneously or intravenously, the whole of it will appear in the urine in a short time. Sodium phosphate is of limited use internally, as it practically only displays the purgative action of sodium sulphate and is absolutely useless in the chief indications for phosphorus therapy (rickets, scrofula and diabetes). Theoretical considerations have proved a failure in this connection. But the administration of phosphorus itself has attained significance, not so much in skin disease, heart disease, impotence, angina pectoris and neuralgia, as in rickets. There are some, however, who consider phosphorus of little or no value in rickets. And it is also noteworthy that bone formation is little influenced by phosphorus, while nervous symptoms and the general state of health are affected to a much greater extent. It cannot, therefore, be considered absurd to deny that phosphorus has any direct influence on phosphate metabolism. How, indeed, could it be expected to act? In the form of an element an action would be contrary to the chemical properties of phosphorus, and oxidized, as phosphoric acid, it has no value. Either then a selective action on the cells must be attributed to it, or it must be supposed to be comparable to arsenic in its method of action. It is well known that treatment by arsenic greatly benefits the general health and improves nervous symptoms. Hence if the administration of phosphorus has occasionally been observed to have a favorable influence on the bony structure, its action may quite well be secondary, i. e., a consequence of the improvement in the general health. There is as yet no evidence, either physiological or pharmacological, that phosphorus has a directly favorable influence on bone formation, nor has this been found to be the case in practice. What object then could there be in clinging to such a method of treatment, which besides is not without danger? Deeper penetration into the physiology of

metabolism and its products showed us a safer method of procedure.

Shortly after the discovery of glycerophosphoric acid by Pelouze, Gobley demonstrated the presence of glycerophosphoric acid in a fatty substance which Vauquelin (1811) had already prepared from yolk of egg. He obtained it by treating Vauquelin's substance, which he called lecithin, with caustic potash, whereby potassium glycerophosphate was separated. Strecker examined more minutely the chemical procedure by which lecithin was split off. He found, as Diakonow had done before, that in lecithin the glycerophosphoric acid is bound to choline. According to this the theoretical lecithin would have the constitutional formula:



However, in the lecithins which occur naturally, the two free hydroxyl groups, or the hydrogen atoms belonging to the glycerin radical are replaced by the acid residues of palmitic acid ($\text{---C}_{16} \text{H}_{31} \text{O}$), stearic acid ($\text{---C}_{18} \text{H}_{35} \text{O}$) or oleic acid ($\text{---C}_{18} \text{H}_{33} \text{O}$). Therefore, in the saponification of the lecithins, besides choline and glycerophosphoric acid, the soaps of the fatty acids just mentioned are also formed. A similar process is caused, according to Bókay, by the fat-splitting ferment of the pancreas or the putrefactive ferment in the gut. The products of decomposition (choline, glycerophosphoric acid, and fatty acids) are absorbed from the intestine and carried to the circulation. This can easily be demonstrated after consuming lecithin by the increase in the phosphoric acid metabolism or the increased excretion of phosphoric acid in the urine. According to Sotnitschewsky, the presence of glycerophosphoric acid can also be demonstrated in the urine, though Robin threw doubt on this observation. He believes, probably correctly, that glycerophosphoric acid is not present as such in the urine, but is formed from the lecithin in the urine by the chemical reaction of the reagents used for testing the urine. The presence of glycerophosphoric acid in wine observed by Funaro and Rastelli and its presence in cod-liver oil, confirmed by Gautier and Morgues, might in the same way be traced to the presence of lecithin, which

is a constituent of all vegetable and animal tissues.

The communication of G. de Pasqualis forms an important supplement to the work of Bókay. This observer not only confirmed the view that lecithin, during the process of digestion, was split up into choline and glycerophosphoric acid, but also showed that glycerophosphoric acid or its salts represents the form of phosphorus which occurs as the product of metabolism, and is the most suitable for absorption into the body. Thus the path was found which should be followed in the treatment of disturbances of phosphate metabolism, and from this time on the glycerophosphates have become established in our *materia medica* and have been regarded with increasing favor. This was facilitated by the fact that they are absolutely harmless to the human body even in large doses, and yet fulfill their object in small doses.

The works of Pasqualis, K. Bülow, A. Robin, E. Delage, and A. Marua y Valerdi must also be considered in reviewing the physiology of glycerophosphoric acid. According to these authors, glycerophosphoric acid is digested without any difficulty by the stomach or intestines; it is quickly absorbed and reaches the circulation unaltered. Later it is found in the urine in the form of phosphoric acid salts. Robin, to whose work the introduction of the glycerophosphates into therapeutics is greatly due, gave as his opinion, as the result of his studies, that the glycerophosphates exercise a selective action on the nutrition of the nerves, and he thus encouraged their use as a nerve tonic. From his publications on this subject it appears also that the introduction of glycerophosphates into the body increases general metabolism, and has a specially favorable influence on the exchange of nitrogen. Besides this they are said to assist the more complete utilization of sulphur compounds in the body. Further, the assimilation of nutritive phosphates by the nerves is promoted and excretion modified in the nervous system. Thus the glycerophosphates may be considered a direct means of sparing the nervous system. Finally Robin points out that calcium metabolism is greatly stimulated by the glycerophosphates, especially in bone substance, but the phosphorus exchange in the bone tissue remains uninfluenced.

The most important glycerophosphates for therapeutic use are the sodium, calcium and iron salts of glycerophosphoric acid; they shall therefore be discussed first. Free glycerophosphoric acid is of little value

therapeutically. It serves principally as an addition to solutions of glycerophosphates, when these for any reason are required to give an acid reaction.

SODIUM GLYCEROPHOSPHATE.

Of the preparations mentioned (see E. Merck's Ann. Report, vol. xxv, p. 8) all are suitable for internal use; for purely physical reasons crystalline sodium glycerophosphate and its 50 per cent. or 75 per cent. solutions are best suited for subcutaneous and intravenous injection. As solutions of sodium glycerophosphate in water are not decomposed at 100° to 120° C., nothing stands in the way of their sterilization for subcutaneous and intravenous use. Sodium chloride and other glycerophosphates, such as the iron and quinine salts, may also be added; but care is necessary in the case of other salts, as they may in certain cases cause decomposition at the ordinary temperature or on heating, as for example sodium phosphate, mineral acids, carbonates and lead salts. The dosage of sodium glycerophosphate, about to be described, refers to the 100 per cent. salt having the formula $\text{Na}_2\text{PO}_4 \cdot \text{C}_3\text{H}_7\text{O}_2 + 3\text{H}_2\text{O}$. Thus, for example, when using the 50 per cent. solution a double dose would be required.

Robin first recommended sodium glycerophosphate as a nerve tonic to be given by mouth and subcutaneously and obtained most excellent results in convalescence from influenza and other infective diseases, and also in nervous asthenia of any origin, such as sciatica, tic douloureux, and furthermore in Addison's disease, lumbago, Graves' disease and phosphaturia. The remedy is less effective in *tabes dorsalis*, in which its action seems restricted to the diminution of the lightning pains. In a case of facial neuralgia described by Robin, sodium glycerophosphate had an excellent result. After the author had used osmic acid and other medicaments without benefit, he injected a 25 per cent. aqueous solution of sodium glycerophosphate directly into the nerve or its immediate neighborhood, with the result that a noticeable improvement occurred, and with daily repetition of the injection the patient was again able to sleep.

Sodium glycerophosphate is very serviceable in sciatica, as is stated by Robin and confirmed by Billard. A subcutaneous injection of 1 Cc. (17 min.) of the 25 per cent. solution is given first, and this dose gradually increased to 2 to 4 Cc. (34 to 68 min.). But for ordinary purposes a dose of 2 Cc. (34 min.) is sufficient. The injection itself is given very slowly and as

deep as possible into the muscular tissue and in the immediate neighborhood of the nerve. By taking full aseptic precautions these injections cause neither pain nor inflammation. The improvement usually sets in very quickly, but only becomes definite by prolonged use of the injections. By means of this treatment, which is quite free from danger, out of 63 cases Robin succeeded in achieving a cure in 41 and a more or less definite improvement in 18. In 4 cases only was the treatment unsuccessful.

Sodium glycerophosphate is also useful, according to Robin, in the treatment of lumbago. He recommended it chiefly in those cases which did not appear suitable for the use of jaborandi, and he succeeded in causing the disappearance of the motor disturbances within a few days. As a daily dose he suggests 0.3 to 0.5 gramme (5 to 7½ grains) of the salt, administered subcutaneously into the lumbar region.

The internal administration of sodium glycerophosphate also often shows good results. Starr had satisfactory results with the use of this medicament in Graves' disease. In one case, in which a variety of remedies had been tried for 1½ years without success, he succeeded in bringing about a decided improvement in a fortnight. His prescription was:

Sodii Glycerophos.	25.0 Gm.
Aq. Destill.	25.0 Gm.
Aq. Aurant. Flor.	55.0 Gm.
Syrup. Aurant. Cort.	20.0 Gm.

Sig.: One teaspoonful to be taken three to four times daily.

Kahane, as the result of many trials, confirmed the value of sodium glycerophosphate when used internally in Graves' disease, and recommends it also in the treatment of chronic myelitis, hysteria, neurasthenia and neuroses. According to T. Harris, its use should also be seriously considered in the treatment of nervous exhaustion following mental strain. Kahane prescribed the glycerophosphate, which in his experience never gave rise to unpleasant effects, in spite of its action in strengthening and improving the health, as follows:

Sodii Glycerophos.	25.0 Gm.
Aq. Destill.	
Aq. Aurant. Flor.	50.0 Gm.
Syrup. Aurant. Cort.	20.0 Gm.

Sig.: One teaspoonful to be taken three times daily.

G. Bardet gave as his opinion that the action of the acid salts of glycerophosphoric acid was stronger, but that these were only suited for internal use. He also mentioned an acid sodium glycerophosphate. As it has not been possible as yet to prepare this

salt, a mixture of sodium glycerophosphate and glycerophosphoric acid in molecular proportions was probably meant, and it is certain that Bardet possessed nothing but this for his experiments. The author states that this mixture, given in daily doses of 15 to 25 grammes has, besides its specific action, also a mild purgative effect which could be used for therapeutic purposes. The mechanism of this action is said to be similar to that of tribasic sodium phosphate and only to differ from the latter in its strong action as a cholagogue. This makes the preparation suitable for the treatment of dyspepsia, hyperchlorhydria, habitual constipation and sluggish liver.

Generally speaking, the following indications for sodium glycerophosphate may be given: Diminution in general metabolism and in lime metabolism in the bones, disturbances in phosphate metabolism, progressive paralysis, senility, tabes dorsalis, diabetes, scrofula, rickets, neuroses, neurasthenia, neuralgia, lumbago, sciatica, tic douloureux, nerve atrophy, nerve weakness, hysteria, Addison's Graves' disease, chronic myelitis, atrophy of the liver, sluggish liver, constipation, dyspepsia, hyperchlorhydria, phosphaturia, mental and physical overwork and convalescence from debilitating infective diseases.

The dosage and method of administration of sodium glycerophosphate must vary according to the form of disease and the physical condition of the patient. In those cases not requiring rapid or local action, as, for example, sciatica and facial neuralgia, internal treatment will generally be adopted, as it is more agreeable to the patient. The preparation is then given in the form of powders, pills or mixtures. If a prolonged course of glycerophosphate is necessary, as, for instance, in weakly children, the preparation may be given in the food or with children's food, rusks, etc. Southern wines also form a useful excipient for glycerophosphate for general and constant use. Aqueous solutions are less suited unless they are used up in a few days, as glycerophosphates in aqueous solution constitute a good culture media for fungi and bacteria, and hence do not keep well in this form. For the same reason solutions destined for subcutaneous injection must always be sterilized before use. They are therefore prescribed thus:

Sodii Glycerophos.	1.0 Gm.
Sodii Chloridi	0.03 Gm.
Aq. Destill.	ad. 5.0 Gm.

To be sterilised. For subcutaneous (intramuscular) injection. One Cc. to be given once or twice daily.

Naturally sterile solutions of this kind can be used after adequate dilution for intravenous infusion.

There is no need to be too cautious in the internal administration of sodium glycerophosphate, as it is perfectly harmless. For economic reasons it is best to keep to the small doses generally used, so long as there is no proof that larger doses have a better and more rapid action. For adults single doses of 1 to 2 Gm. (15 to 30 grains) and daily doses of 5 to 10 Gm. (75 to 150 grains) are prescribed. Very young children can take 0.2 to 0.5 Gm. (3 to 7½ grains) daily, and older children 1 to 5 Gm. (15 to 75 grains). Larger doses are only necessary for adults when the cholagogue action of the drug is sought.

Calcium Glycerophosphate.—Robin and Pasqualis were the first to describe the therapeutic use of calcium glycerophosphate. The latter author pointed out that the action of calcium phosphate and of calcium glycerophosphate differed both physiologically and pharmacologically. Thus the excretion of phosphoric acid with constant diet is increased in the first 24 hours when calcium glycerophosphate is administered, whereas with calcium phosphate an increase in phosphate metabolism can only be recognized after two days. The explanation of this observation is that glycerophosphate is much more readily absorbed and utilized by the organism than is the phosphate. Even with large doses of calcium glycerophosphate Pasqualis could only find traces of glycerophosphoric acid in the urine, and these might, as I have already pointed out, be due to alteration in the lecithin normally present in urine. The complete utilization of glycerophosphoric acid by the organism is the explanation why comparatively small doses usually suffice. According to Robin, calcium glycerophosphate not only increases phosphate metabolism, but it also increases the solid constituents of the urine, as, for example, the urea content rises from 23 to 32 per cent., and of the chlorides and sulphates, and, further, the oxidation of nitrogen from 87 to 90 per cent. But uric acid excretion, according to the author, is not influenced. He concludes that the use of glycerophosphate is only indicated in those diseases in which a diminution in the exchange of nitrogen and sulphur can be demonstrated. He considers calcium glycerophosphate specially suitable in conditions of depression in patients suffering from phosphaturia, in convalescence from influenza and other infective diseases, in neurasthenia, in torpid chlorosis with di-

minished nitrogen exchange, in phosphaturia, either with or without albuminuria; in rickets, Addison's disease, sciatica, facial neuralgia, scrofula and tabes dorsalis. He considers the subcutaneous administration of the preparation to be more effective as a rule, but he also obtained satisfactory results by prescribing it internally. Subcutaneously he gives daily doses of 0.05 to 0.5 Gm. (¾ to 7½ grains) and internally daily doses beginning with 0.5 to 1 Gm. (7½ to 15 grains). In phosphaturia he prescribes for example:

Calcii Glycerophosph.	...	0.2 —0.4	Gm.
Nuc. Vomic. Pulv.	.....	0.02—0.03	Gm.
Albuminis Ovi Siccatis	...	0.1	Gm.
Ft. pulv. Mitte	x.		

Sig.: One powder to be taken at each meal.

Gay prescribed calcium glycerophosphate as follows:

Calcii Glycerophosph.	.....	10.0	Gm.
Acidi Citrici	.....	1.0	Gm.
Sacchari	.....	610.0	Gm.
Aq. Destill.	.....	340.0	Gm.

Solve agitando neve calorem adhibendo et adde Syrup. aurant. cort. q. s. ad 1000.0 Gm.

Sig.: One tablespoonful to be taken thrice daily. (Not suitable for keeping long.)

Calcii Glycerophosph.	....	0.15—0.3	Gm.
Massae Cacao	.....	0.1	Gm.

Fiat. pastill. Mitte 50. S. 1 pastille 4 times daily.

Calcii Glycerophosph.	...	1.0—3.0	Gm.
Acidi Citrici	.....	0.1—0.3	Gm.
Aq. Destill.	.....	100.0	Gm.

Sig.: One teaspoonful to be taken several times a day.

Carles has given the following prescription for the preparation of a wine containing calcium glycerophosphate:

Calcii Glycerophosph, Neutral.	10.0	Gm.
Vin. Xerensis	.....	750.0
adde		
Acidi. Tartarici	.....	3.0
Vin. Xerensis	.....	250.0

It may be noted that Gay also prescribed calcium glycerophosphate in effervescing mixtures, prepared by adding a suitable amount of sodium bicarbonate and citric acid to the aqueous solution. But granular effervescent calcium glycerophosphate is a much more convenient form, as it dissolves in water with effervescence. A fairly large pinch of this preparation is taken in a glass of water several times daily.

Patin gives incontinence of urine as another indication for calcium glycerophosphate. On account of its harmlessness it can be safely given to children as well as to adults. For adults 2 daily doses of 0.5 Gm. (7½ grains) each suffice, and for children, according to their age, a dose of

0.25 to 0.4 Gm. 4 to 6 grains), morning and evening.

In influenza calcium glycerophosphate with quinine has proved very useful. Capitan recommends it in the following form:

Calcii Glycerophosph.
Quinin. Hydrobromidi.....aa 0.5 Gm.
M. Mitte X.

Sig.: One to two powders to be taken daily.

Jaquet obtained a good result in alopecia areata by giving 0.15 Gm. of the preparation after every meal, besides continuing the local treatment. It may also be given alternately with sodium monomethylarsenate, as was suggested by Brocq. In this case a small teaspoonful of solution of 0.5 Gm. of sodium monomethylarsenate in 175 Gm. of water and 25 Gm. of aqua laurocerasi is given after every meal for a fortnight, and then for the next fortnight this medicine is replaced by the following powders:

Calcii Glycerophosph. 0.25 Gm.
Magnesii Glycerophosph. 0.1 Gm.
Sodii Phosphatis 0.25 Gm.
Maltine 0.03 Gm.
Quassin 0.01 Gm.
Ft. pulv. Mitte xxviii.

Sig.: Two powders daily.

Calcium glycerophosphate also deserves due consideration in the treatment of pulmonary tuberculosis. Michelozzi and Angiulli have tested its value both pharmacologically and clinically. Michelozzi gave infected rabbits daily doses of 3 Gm. and obtained clinical and structural cures. Angiulli prescribed it in human practice both internally and subcutaneously with very good results. The ingestion of calcium salts is necessary, in his experience, because the excretion of calcium is increased in tuberculosis, thus causing poverty of calcium salts in the body; also the impregnation of the tuberculous focus with calcium salts may initiate or hasten the healing process. Therefore 0.5 Gm. ($7\frac{1}{2}$ grains) of calcium glycerophosphate are given internally 3 to 4 times a day, or 2 to 5 Cc. (34 to 85 min.) of a 20 per cent. solution are injected daily subcutaneously. The author brought about a cure on an average by means of 90 injections. These were always well borne and markedly contributed to the improvement in the clinical signs. But Angiulli also records direct cures in patients in the first and second stages of the disease. If Mitulescu believes that the increased excretion of phosphoric acid which follows the ingestion of the glycerophosphate proves that the calcium is not retained and only acts by stimulating metabolism, his view is contradicted both by Angiulli's successful

results and by Tuncliffe's observations. The latter showed that in spite of the increased excretion of phosphoric acid by the organism, phosphorus was also retained in greater quantities if calcium glycerophosphate were added to the food. Calcium phosphate does not act in this way; nor can it, like calcium glycerophosphate, increase the assimilation of nitrogen from the food.

P. Sittler states that calcium glycerophosphate is useful in rickets, when combined with sodium nucleinate. He prescribed these medicaments in the form of powders or tablets. According to the age of the child, sodium nucleinate is given in daily doses of 0.2 to 0.5 Gm. (3 to $7\frac{1}{2}$ grains), and calcium glycerophosphate in daily doses of 0.1 to 0.25 Gm. ($1\frac{1}{2}$ to 4 grains).

In conditions of general weakness, dentitis difficilis, chlorosis, anemia and for convalescents, Dujardin-Baumetz's prescription can be recommended:

Calcii Glycerophosph. 5.0 Gm.
Vin. Cinchon. 200.0 Gm.
Vin. Kolæ 200.0 Gm.
Syrup. Aurant. Cort..... 50.0 Gm.

Sig.: One liqueurglass full to be taken with meals.

A calcium syrup which is pleasant to the taste and keeps well is obtained by dissolving 10 Gm. of neutral or acid calcium glycerophosphate in 900 Gm. of syrup and adding 100 Gm. of syrup. aurant. cort., or syrup. aurant. flor. Of this syrup, children may take a teaspoonful to a tablespoonful, according to their age, once or several times daily.

Calcium glycerophosphate, being the most harmless and effective nerve tonic, it has been widely used. Like other glycerophosphates, it has been especially employed in the form of medicated wines, for the nutrition of children and as a general strengthening medicine; thus it forms the principal ingredient of antisclerosin, which is much used in arteriosclerosis.

The indications for calcium glycerophosphate are: General conditions of debility, especially after infective diseases, senility, arteriosclerosis, Addison's disease, phosphaturia, influenza, tuberculosis, anemia, chlorosis, incontinence of urine, nocturnal enuresis of infants, tabes dorsalis, rickets, osteomalacia, scrofula, nerve atrophy, nervous debility, neurasthenia, hysteria, sciatica, facial neuralgia, over exertion, convalescence and alopecia areata.

The dosage for subcutaneous injection is usually 0.2 to 0.5 Gm. (3 to $7\frac{1}{2}$ grains) in aqueous solution or suspension once

daily. The preparation is not decomposed when sterilized in aqueous solution; I would point out, however, that solutions of calcium glycerophosphate become cloudy on heating, part of the salt being precipitated. On cooling it is redissolved. Calcium glycerophosphate is given internally to adults in single doses of 0.2 to 0.5 Gm. (3 to 7½ grains) and in daily doses up to 10 Gm. (½ oz.); to children, according to their age, in daily doses of 0.3 to 3 Gm.

Ferric Glycerophosphate.—As calcium glycerophosphate has won so much appreciation in the treatment of chlorosis, anemia and debilitating diseases on account of the favorable influence it exerts on metabolism, with consequent improvement in the general physical condition, an even more favorable action might be expected from the glycerophosphate of iron. And indeed this preparation has become one of the most popular of the glycerophosphates, as well as one of the iron compounds. The preparation is distinguished from most of the usual iron compounds by its ready absorption and rapid action, and it is therefore regarded with increasing favor in the treatment of the diseases above named. Robin had already recognized the good qualities of iron glycerophosphate and had prescribed it with marked benefit. He gave it in the form of pills or syrup, and in combination with kola and nux vomica in daily doses of 0.3 Gm. (5 grains).

Bardet and Gay have expressed very favorable opinions as to the value of ferric glycerophosphate in the treatment of anemia and chlorosis. It is also frequently used as a tonic for weakly and ill-nourished persons, and in neurasthenia, phosphaturia and Graves' disease. The following prescriptions can be recommended:

Ferri Glycerophosph. 10.0 Gm.

Misce terendo cum

Glycerini Puriss. 40.0—50.0 Gm.
adde

Vini Hispanici Albi. 1000.0 Gm.

Digere per horas iv interdum agitando, deinde filtra.

Sig.: Tonic wine. A liqueurglass full before each meal.

Ferri Glycerophosph. 1.5—3.0 Gm.

Rad. Rhei Pulv. 1.5—3.0 Gm.

Extract. Cinchon. Regiæ... 4.5—3.0 Gm.

M. Ft. pil. 60. Consperge cort. cinnam. pulv.

Sig.: Four to six pills to be taken daily with meals.

Ferri Glycerophosph. 2.0 Gm.

Aq. Cinnamomi 40.0 Gm.

Syrup. Aurant. Cort. ad 200.0 Gm.

Sig.: One tablespoonful in a glass of water several times daily. (Liebreich—Langgaard.)

Potassium Glycerophosphate.—Potassium

glycerophosphate may be given by itself or mixed with other glycerophosphates in the same doses and for the same diseases as the sodium salt. It has also been given subcutaneously, prescribed as follows:

Pottassii Glycerophosph. 1.0 Gm.

Sod. Chloridi 0.03 Gm.

Aq. Destillatæ 5.0 Gm.

To be sterilized.

Sig.: One Cc. (17 min.) to be injected daily.

Lithium Glycerophosphate.—The therapeutic use of lithium glycerophosphate is indicated in all those cases in which lithium salts would be given and in which at the same time the tonic action of the glycerophosphates seems called for. First and foremost comes gout, accompanied by nervous symptoms and debility. It is also of benefit in sciatica, rheumatism and calculus. It is given 3 to 4 times a day in doses of 0.5 to 4.0 Gm. (7½ to 60 grains) in water, soda water or aerated lemonade.

Magnesium Glycerophosphate has the same uses and dosage as the sodium salt. In chronic constipation it should be given in larger doses (5 to 10 Gm. [75 to 150 grains] as a dose, daily).

Manganese Glycerophosphate may be given alone or in combination with iron glycerophosphate in the same doses and for the same diseases as the last named salt. For preparing solutions soluble manganese glycerophosphate is prescribed, for pills and powders neutral manganese glycerophosphate.

Bismuth Glycerophosphate is given alone or combined with other suitable drugs, such as bismuth subnitrate, in affections of the stomach and intestines, dyspepsia, diarrhea, vomiting with diarrhea, cholera, dysentery, ulcer of the stomach or intestine, cardialgia, acidosis, etc., in doses of 0.5 to 1.0 Gm. (7½ to 15 grains) 3 or 4 times daily.

Strontium Glycerophosphate.—As strontium salts are non-poisonous, and, according to Laborde, improve the appetite and the state of nutrition, strontium glycerophosphate is a drug deserving of special interest in general debility, especially after exhausting diseases, in convalescence, pulmonary tuberculosis, albuminuria, rickets, tænia, etc., 0.5 to 1.0 Gm. (7½ to 15 grains) are given several times daily, or when necessary (in tænia), up to 10 Gm. (150 grains) a day, preferably in the form of powders.

Zinc Glycerophosphate.—No special indications have as yet been given for this salt. It might be used in the place of zinc phosphate in the treatment of epilepsy and other nervous complaints, and also as an astrin-

gent and antispasmodic. As larger doses might conceivably cause vomiting, as does zinc sulphate, it is best to begin with small single doses of 0.01 to 0.05 Gm. (1-6 to $\frac{3}{4}$ grain).

On no account should a larger dose than 1 Gm. (15 grains) daily be given without a previous examination of the individual. Externally the salt might certainly be used like zinc acetate as a caustic, 'astringent and antiseptic. I have no references to this form of its employment.

Quinine Glycerophosphate.—According to Moncourt, quinine glycerophosphate has the advantage over the other quinine salts that it has no noxious by-effects. It does not upset the stomach, nor does it cause buzzing in the ears, and it can be taken for a prolonged period, as the patient does not become habituated to the drug, and its efficacy is thus not diminished. Moncourt assumes that a diminution in the efficacy of the other quinine salts after prolonged use occurs owing to the quinine gradually causing poisoning of the nerve cells.

If, however, the medicament be united to a substance which promotes the new formation of nerve tissue, as is the case with glycerophosphoric acid, the disadvantage mentioned above is eliminated and the beneficial action of the quinine is in no way interfered with, even after prolonged administration. In malaria this circumstance is said to be specially noteworthy.

In fever, quinine glycerophosphate is given in doses of 0.5 to 1.0 Gm., as an antineuralgic 0.3 to 0.6 Gm. are given daily, and as a tonic single doses of 0.1 to 0.2 Gm., and daily doses of 0.2 to 0.4 Gm. As a tonic it may be employed in the place of quinine wine. It is prescribed in cachets or as pills.

Strychnine Glycerophosphate.—This preparation can be prescribed in the same way as strychnine nitrate. But it is specially suitable in cases such as tuberculosis, anemia, debility, etc., in which the glycerophosphates of calcium, sodium or iron are to be administered in combination with strychnine, as was suggested by Robin.

Given by itself, strychnine glycerophosphate has no advantage over strychnine nitrate, because its maximum dose of 0.01 Gm. (1-6 grain) a day contains such a small amount of glycerophosphoric acid that it can have no therapeutic significance. As a substitute for the syrup of glycerophosphates formerly recommended by Robin the following powder might prove very useful:

Calcii Glycerophosph.	5.0	Gm.
Potassii Glycerophosph.	2.5	Gm.
Sodii Glycerophosph.	2.5	Gm.
Magnesii Glycerophosph.	2.5	Gm.
Ferri Glycerophosph.	1.25	Gm.
Strychnin. Glycerophosph.	0.06	Gm.
Caffein	1.25	Gm.
Sacchari Lactis	ad 100.0	Gm.

M. f. p. det. ad vitrum bene clausum.

Sig.: A pinch to be taken several times daily during or after meals.

The mixture may also be prescribed in separate powders of 1 to 3 Gm. (15 to 45 grains). It is scarcely necessary to exceed a single dose of 3 Gm. (45 grains) or a daily dose of 9 Gm. (135 grains). It may be borne in mind, however, that the maximum single dose of strychnine is contained in 10 Gm. (150 grains) and the maximum daily dose in 20 Gm. (300 grains) of the powder.

CONTRIBUTION TO THE HISTORY OF ICHTHYOL*

By Dr. A. Rose, of New York

Summing up the exceptionally voluminous literature on ichthyol and considering all that has been said about it, we come to the conclusion that there has been hardly any exaggeration in praising its therapeutic value. I believe that its importance surpasses by far that of cod-liver oil, and it is a positive fact that there exist few medicines which are indicated in so many different diseases, which have been given with such gratifying results, and which at the same time are entirely harmless, whether applied externally or internally, in small or in large doses.

Near the village of Seefeld, in Tyrol, is found a fossiliferous deposit, a kind of asphalt, a bitumen to which for over five centuries have been attributed therapeutic qualities. Under the name *Tierschenoel* it is mentioned in the documents of the courts of Hertenberg, near Telfs, as early as the year 1350. Its fame as a remedy in diseases of cattle and in rheumatic affections was widespread among the Tyrolians, and under the name black-stone-oil, *oleum petrae nigrum*, it became an article of trade, not only throughout the Tyrolian valleys, but even in faraway countries, in Hungary and the Balkan lands.

By means of a kind of dry distillation the bitumen of the oil stone was decomposed, the oil which thereby formed collected, and, without further manipulation, applied for therapeutic purposes.

*Medical Council, Feb., 1913.

In the year 1882 Rudolf Schroeter of Hamburg, while traveling in Tyrol, learned of this peculiar oil and its history and had an opportunity to convince himself of its therapeutic action.

By means of a chemical examination he found that the most important of its constituents was sulphur. In order to free the oil from impurities he treated it with concentrated sulphuric acid and thereby succeeded in transforming it into a substance which was soluble in water. By the process it had become more applicable for therapeutic purposes. He named this new preparation, an organic combination with sulphur as the essential constituent, and soluble in water, "Ichthyol"—a fictitious name which has no etymology.

The essential question was now to establish whether or not this new in-water-soluble preparation had retained the valuable therapeutic qualities for which the mother substance, the old Tierschenoel, had been praised.

It was Unna who tried it clinically; and by means of a series of classical tests demonstrated the therapeutic significance of ichthyol. Based on theories which Unna deducted from therapeutic facts, all the indications which he himself and which others after him, principally Schwenninger and Nussbaum, had found, were formulated. Unna not only gave the basis for therapeutic application, but he also investigated the chemical particularities of ichthyol. At his suggestion, and together with him, Baumann and Schotten made a thorough chemical study of it.

Before Unna introduced ichthyol into therapeutics there was in use an *oleum lini sulphuratum*, or sulphur balsam, and a solution of it in turpentine, *oleum terebinthinac sulphuratum*. This balsam, as it was called, had some resemblance to ichthyol, namely, a similar odor; and, like ichthyol, it has as its essential constituent sulphur; but in reality there is a wide difference between the two—ichthyol is a natural product, containing the *organic* sulphur combination as it is found in the dolomites of Seefeld, while in the sulphur balsam the *anorganic* sulphur has been added artificially. And this difference is yet more or less present in substitutes for ichthyol, even those containing organic sulphur, as compared with the genuine article.

The therapeutic success of ichthyol induced many industrials to manufacture synthetically preparations which resembled ichthyol; some of these preparations are compositions out of stone oil containing

organic sulphur, but found in other regions away from Seefeld. (This does not apply to preparations which contain real ichthyol combined with other drugs.)

There is an endless list of substitutes for the genuine ichthyol, the ichthyol prepared from the Seefeld oil stone, that marly chalk found in the nests and layers of the dolomites and trias formation near Seefeld.

The brown, almost black, color as well as the combustibleness of the oil stone are due to the fact that it contains fossil organic substances, principally of animal origin. Such organic substances, which are known as bitumen, consisting of hydrocarbon combinations are frequently found as part of stone formations, and we shall speak of them later on. The bitumen of Seefeld is distinguished especially by its high percentage of chemically-bound sulphur. In the so-called fish slate and gall-stone layers found near the oil stone, which layers, however, are poor in bitumen, there are frequently seen impressions of ganoid fishes; in the oil stone itself they are missing.

The first day I learned of the internal administration of ichthyol, as noted in a paper I contributed to the *Medical Summary*, June, 1912, it was about 1885; reading of its successful administration in the case of Prince Bismarck by Schwenniger, all details of which I have given in the paper mentioned, I learned simultaneously that there were in the market, under the name "ichthyol," a number of imitations, preparations of which I have spoken. I remember well the difficulty which I had at that time in seeing to it that my patients should receive the real ichthyol. At present these conditions have improved: the name "ichthyol" is protected by law, and no honest druggist will dispense anything but real ichthyol when ichthyol is prescribed.

How important it is to ascertain that our patients receive the genuine preparation we learn to understand when studying the chemistry of ichthyol. And this chemistry, as stated, has been studied by Unna in association with Baumann and Schotten, and supplemented by the later researches of Passmore, Aufrecht and Helmers.

These investigators have found that ichthyol presents a very complicated composition; that one thing above all is characteristic—the high percentage of sulphur by which the Seefeld oil distinguishes itself from all other bituminous masses—and this high percentage of sulphur in the Seefeld product has a therapeutic effect which cannot be equalled by any of the imitations.

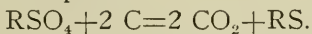
Dr. Otto Helmers of Hamburg has given

a complete description of the chemistry of ichthyol in the twentieth volume of "Dermatologische Studien" (Hamburg, 1910.)*

In order to understand the origin of the organic sulphur constituent of the Seefeld oil it is necessary that we know certain geological facts. The cadavers of those fishes of the antediluvian period which did not strand on the shores accumulated at the bottom of the sea, where they became decomposed by the action of bacteria. Animal matter has a very complex composition, and is made up of three or four component parts, consisting principally of the following simple elements: Carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus. These component parts, when set free, act in different ways upon the water and the mineral matters with which they come in contact; they, among other actions, impart medicinal properties to the waters, and, in the case of ichthyol, to the mineral matter as found at Seefeld.

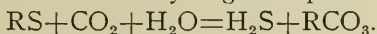
The floating organisms which after their death drop to the bottom of the sea in large quantities, serve as food for the animals of the deep, which under normal conditions act as scavengers and to some extent clear away these deposits. Generally the deep-sea currents carry oxygen with them in quantities sufficient to nourish the bacteria which decompose the cadavers. The products of their fermentation are swept away by the currents. But when, owing to peculiar topographical conditions, there is no current in the deep carrying oxygen in sufficient quantities, the deep-sea animals cannot live, and the floating organisms accumulate in great masses.

There is not enough oxygen in the sea water to suffice for transformation by bacteria into carbon dioxide of the carbon contained in the organic matter. The micro-organisms are then obliged to borrow oxygen, of which they are in need, from the salts contained in the sea water, and especially in the sulphates which they transform into sulphides:



Sulphate + Carbon = Carbon dioxide + sulphide.

The sulphides of sodium, of potassium, of calcium, of magnesium, thus formed by reduction, are converted on contact with water and carbonic acid into carbonates, with liberation of hydrogen sulphide:



Sulphide + carbon dioxide + water = hydrogen sulphide + carbonate.

When the alkali carbonates are dissolved in sea water, calcium carbonate is precipitated.

It is not only at the expense of the sulphates that the bacteria produce hydrogen sulphide. The albuminous matter of the organisms contain, as we know, a certain quantity of sulphur and there exist bacteria, especially the bacterium hydrosulphuricum, which have the property to abstract the sulphur from the albuminous substances and to transform it into hydrogen sulphide.

These different phenomena occur as well in the seas as in the lagunes and in the sweet-water lakes which receive a sufficient supply of waters which are called selenitous, which means rich in sulphate of calcium, but it is, above all, in the Black Sea that the conditions of the production of hydrogen sulphide have been studied. Geologists are endeavoring to ascertain if the dolomites of Seefeld and South Tyrol in general have originally been sea reefs.

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ECZEMA AS SEEN BY THE GENERAL PRACTITIONER*

[By A. Ravogli, M.D., of Cincinnati]

WHEN a physician is called to see a case of skin affection, the most obvious diagnosis he makes is that of eczema. A dermatologist called to see a case of an affection of the skin with some inflammatory symptoms, exudation, vesicles, etc., will pronounce it eczema. It seems to the writer that eczema is to the dermatologist what rheumatism and dropsy are to the general practitioner. It is a group of symptoms which reveal an inflammatory affection of the skin. But so far a proper limitation and a true meaning of eczema have not yet been established. In a great many cases the diagnosis of eczema is made for the only reason that the eruption has some of the characteristics which are given in the description of this disease. In many cases it is a diagnosis of convenience, so as to satisfy the patient and also the physician.

We must say that eczema is an inflammation of the skin, and Hebra stated that it can be artificially produced. But we must not forget that we have a genuine inflammation of the skin which we call dermatitis. Therefore, we find it necessary to state that dermatitis is not eczema, but that eczema is dermatitis.

*Ein Beitrag zur Geschichte und Chemie der in Wasser löslichen organischen Schwefelpräparate. Passmore, Chemist and Druggist, Dec. 18, 1909. Aufrecht: Allgem. Mediz. Central-Zeit., 1912, No. 69.

*Interstate Med. Jour., Dec., 1912

The writer is sure that this will appear as a somewhat paradoxical statement, but in a few words his idea will be clear. When we apply some croton oil to the skin, we see that the skin becomes red, inflamed, swollen, itches and burns, and by repeating the application we produce vesicles and papules; if the skin is kept clean, covered with sterilized gauze, it returns to its normal condition in a few days. We may see the same when the skin has been exposed to the direct action of the sun; when it is red, swollen and even blistered we have a form of dermatitis calorica, but no one would be correct in making a diagnosis of eczema.

In order to understand the writer's position as to eczema, a sharp line between dermatitis and eczema must be drawn, and then it will easily be seen that eczema is a dermatitis, but that dermatitis is not eczema. In a great many cases of acute eczema, and especially in those cases of recurrent eczema which Unna called nervous eczema, we can easily see that there is a great difference between eczema and dermatitis.

Dermatitis is quite often the beginning of an eczema, which, starting with acute symptoms, gradually assumes a type of chronicity, with repeated recurrences, and is an eczema. Willan and his followers, in their classical definitions of eczema, did not separate it from an inflammatory process of the skin. They claimed eczema to be an eruption consisting of small non-contagious agglomerated vesicles, which, when their fluid contents were reabsorbed, were changed into thin scales or crusts. In this definition any eruption could find its place, either from internal or from external cause; and any traumatic dermatitis or herpetic eruption could be grouped together in the same way.

Rayer and the French School distinguished acute vesicular dermatitis from chronic vesicular eruptions, and this differentiation corresponds to the conception of our idea of eczema. Devergie was the first to show the greater frequency of eczema over the other affections. He rejected the idea of an eczematous dyscrasia, and considered the person subject to eczema as healthy, and only sick when afflicted with the eruption. Rayer opposed the idea of Willan that the presence of vesicles constituted eczema; he also opposed the ideas of Bazin and Hardy as regards arthritic and herpetic eczema.

A complete study of eczema was made by Hebra, who gave the most logical and perfect description of the disease. He denied any dyscrasia to be the cause, and

showed that any external irritation could produce the disease. His experiment with croton oil, although not clearly differentiating dermatitis from eczema, was very suggestive in establishing its varieties: erythematous, papular, vesicular, pustular, squamous, and weeping. These clinical forms are still maintained by the dermatologists as a guide in the diagnosis and in the selection of the method of treatment. According to Hebra the affection begins in an acute form, which gradually changes into a chronic eczema. It is only in peculiar states of the organism that chemical and physical causes produce eczema; also menstruation, pregnancy, lactation, chlorosis, etc., may be predisposing factors. Hebra's doctrines taught that dermatitis of different varieties entered into the group of eczema, and that impetigo disappeared as it became an eczema impetiginosum.

The most important characteristic of eczema is not the presence of vesicles, as was maintained by Willan, but the character of chronicity pointed out by Rayer, who described eczema in the different regions of the body, and drew a sharp line between eczema and all the forms of dermatitis that had been considered acute eczema.

The presence of one symptom alone does not constitute the character of eczema, but the diagnosis should follow the grouping of all the symptoms together, thus giving the ensemble of eczema. Redness of the skin, vesicles, oozing of serum, although symptoms of eczema, are, nevertheless, common to dermatitis calorica and any dermatitis venenata. Hebra insisted that the itching sensation was one of the most prominent symptoms of eczema.

M'Call Anderson established four pathological conditions as the principal features constituting eczema:—

1. Infiltration of the skin.
2. Exudation on the surface of the skin.
3. Formations of crusts.
4. Burning and itching sensation.

The infiltration is certainly the characteristic lesion of eczema, and from the infiltration the other manifestations proceed. Papules, vesicles, oozing of serum in eczema rubrum are the result of a varying degree in the exudation and infiltration. The prevalence of these lesions indicates the adjective which should be used in describing any variety of eczema: erythematous, papular, vesicular, or weeping.

Chronicity, which is dwelt upon as the characteristic sign of eczema, must be carefully considered, since we see many cases occurring suddenly in an acute form, and

the existence of acute eczema is undeniable. We must agree with the views of Unna, that if the acute traumatic dermatitis of Willan could be included in the eczema of Rayer, then the relationship between artificial dermatitis and eczema could be scientifically established.

The writer still adheres to the clinical conception of eczema—a position he has maintained for many years. Eczema is an acute or chronic inflammatory process, revealed by hyperemia, infiltration or exudation, affecting the papillary layer of the derma, showing redness, swelling, papules, vesicles, or a red surface deprived of the epidermis, oozing serum with formation of crusts or scales, accompanied with itching and burning sensation. This is a short description which can pass for a definition.

But if we wish to give a definition derived from the true essence of the disease, then we must consider first its possible causation.

Etiology.—It was difficult to arrive at a conclusion when the term eczema included sunburn, dermatitis from mercurial ointments or from handling cement (Willan); and when the dominant idea was the internal origin of eczema—the arthritism of Bazin and the herpetism of Hardy. Although Hebra maintained the cause of eczema to be of external origin, yet he found that the internal organs and the general condition of nutrition had a great influence in the production of the disease. The nervous system was found also to have some possible influence in the production of nervous eczema, a variety of which Bulkley was a strong supporter, followed by Brocq and Kaposi who called attention to reflex eczema.

Numbers of physicians consider dietetic errors as an important cause in the production of eczema. The selection of the food, the digestion, the assimilation, the metabolism, the excretions, and principally the toxic elements formed on account of bad digestion are considered important causes of eczema. Indeed, quite often eczema is associated with dyspepsia, gastrointestinal catarrh, constipation, etc.; and secondary products such as uric acid, creatine, xanthin, etc., brought to the skin by the circulation, cause irritation and eczema. The theory sounds good, very plausible, and consequently the patients are forbidden articles of food which are considered indigestible or doubtful—all spices, sauces, cheeses; only a milk diet is allowed. A patient who consulted the writer for a recurrent eczema had been restricted for six months to some kind of malted milk, yet the eczema kept on in a florid condition.

In 1890, before the British Medical Association in Birmingham, Unna expounded the parasitic theory of eczema, and showed that there was an external cause, which was a living micro-organism affecting the skin. He concluded, after many observations and cultures, that a special parasite, which he called "morococcus," was the cause of the disease. In 1893, in Washington, the writer read a paper before the Pan-American Medical Congress, in which he referred to some experiments which he had made with the staphylococci, producing, artificially, eczematous eruptions in rabbits. He has constantly found staphylococci of two kinds, albus and aureus, in eczema. The ears of some rabbits, after having been shaved, were painted repeatedly with croton oil until vesication was obtained. One ear was left for control, and the other ear was inoculated with cultures of staphylococci. The ear, not inoculated, healed up in three or four days, while in two instances the ears which had been inoculated with staphylococci appeared inflamed and covered with crusts, and took between ten and fifteen days to heal. Reference was also made to clinical observations of eczematous eruptions on the skin which had been exposed to the action of pus, as in the vicinity of chronic abscesses, fistulæ, and often round the genitalia in the female when affected with purulent discharges from the vagina.

The parasitic origin of eczema has been maintained by Toerock, Jadassohn, Galloway, Sabouraud, and many others. The writer is so firm a believer in the origin of eczema from the staphylococci that he would not hesitate to accept the following as a definition of eczema: *A catarrhal inflammation of the skin, produced by the vegetation of the staphylococci in the epidermic layer and in the superficial papillary layer.* This definition should make us understand the difference between dermatitis and the vesicular eczema of Rayer; hence, the writer is in full agreement with Unna, that eczema begins where the artificial dermatitis ceases. In other words, the sun-rays, poisonous sunac, or any medicinal agent will produce a dermatitis which remains a dermatitis for a certain time; but when the staphylococci begin to vegetate on the macerated epidermis, and small vesicles are formed, and when the characteristic slow course is noted, then an eczema has begun. But it would be erroneous to believe that eczema always begins with dermatitis; for, in a great many instances, it begins as eczema, and undoubtedly as an acute eczema. The conception of an acute eczema cannot be denied, unless we ignore

and overlook the characteristics of many cases which come under our observation.

The staphylococcus producing eczema is generally of the albus variety, and shows neither a highly infectious character nor any contagiousness. It has occurred but seldom that a babe has communicated eczema to the mother's breast. Cases in which eczema has been communicated from one to another may occur, but in general they are rare. The infectiousness is only individual, local and limited. In eczema there is no symmetry, the patches show irregularly on both sides of the body, since they are the result of inoculation or arise from the affected skin being contiguous to the healthy skin.

After traumatic or chemical lesions of the epidermis, an eczema may occur, as is often seen from the scratching in scabies and leg ulcers. The auto-inoculability of eczema is quite clear in those instances where it is transferred from one part of the body to another. The finger-nails filled with epidermic scales and pus-producing germs, when scratching, carry eczema to other parts of the skin. Where two surfaces of the skin are in contact, as in the fossa crurogenitalis, the perianal regions are more liable to be affected with eczema on account of the maceration of the epidermis. In these cases the affection starts as an intertrigo, which by the development of the staphylococci is soon changed into eczema. Stubborn cases of eczema are seen around the finger-nails, because the epidermic folds containing the nail offer a good abode for the germs. Staphylococci make their way into the follicles of the hair, causing eczema pilaris, and when going beyond the funnel to the hair follicle cause folliculitis (sycosis). They invade the openings of the sweat glands; they make their way into the pores of the skin, through the furrows of the epidermis, where they remain unmolested. When the eczema improves, the epidermis gradually reforms; but all of a sudden a relapse occurs, which is due to the pathological action of the germs concealed in the pores of the skin. Very frequently we see patients who, suffering from eczema, are affected with furuncles scattered in different parts of the body. These furuncles are the result of the infection carried into the follicles, and then transmitted from the sac of the follicle to the connective-tissue. They are due to the same staphylococci, and more particularly to the aureus, a species which is much more virulent than the albus.

The ubiquitous staphylococcus, growing to immense quantities on the eczematous

surfaces, may be carried into the circulation, and undoubtedly has a noxious influence on the general system, causing systemic disorders which maintain the chronicity of the eczema and the tendency to relapse. In these cases, a lack of resistance in the skin is responsible, a condition which is so well described by the name of "anaphylaxis." Thus the system being unfit to act as a protection against these parasites, the consequence is that any slight irritation of the skin will reproduce the disease.

Weidenfeld, experimenting with eczematous patients, tested the reaction of their skin to the effects of croton oil. He found that the strongest reaction was obtained in those affected with the acute variety, or in those subject to the acute recurrent form. A weak reaction was seen in those affected with chronic eczema. Moreover, the reaction was the greater in cases of diffused eczema, and more accentuated near the eruptive patch than at a distance. According to all his experiments, it appears that the skin of different persons reacts in different ways to croton oil, dependent upon the normal state of the skin; and that in those who have or have had acute eczema, the skin reacts to a great degree, but in chronic eczema of long standing, little or no reaction is found. It appears that croton oil has no peculiar action on the blood-vessels nor on the tissues, but rather affects the serum of the blood, similar to the production of an emulsion of the oil; and this is more apparent in patients suffering from chronic eczema than in those with acute eczema, or in good health.

The inflamed patch produced by croton oil heals up in a few days, but at its site an inflammatory process begins, which is perfectly identical with eczema. Besnier's idea of eczematization is excellent and explains the production of an eczema following any traumatic irritation.

In the opinion of Weidenfeld the recurrence of eczema is due to some kind of toxic substance formed in the system and carried to the skin, thereby increasing its irritability. The skin of those who have suffered from eczema retains a certain degree of irritability, and as a consequence any irritation is capable of bringing on another attack of eczema. It appears that the irritability of the skin remains persistent after eczema, as the result of the absorption of toxic elements from the skin.

Eczema usually begins in one place, as a primary localization, and then is followed by eczematous eruptions on other parts of the body. The primary eruption is always from trauma or from chemical irritation,

as illustrated in eczema of the hands, in the direct action of the sun on the face, in the rubbing of the clothes on the scrotum and genitals, in the hyperhydrosis of the feet. Following the primary eruption, eczema may appear in other parts of the skin; and this is called secondary eczema. Kreibich states that the secondary eczematous eruptions are caused by the primary eczema acting as an irritant on the vasomotor system; and that every traumatic influence will react and reproduce eczema.

The itching sensation of eczema, which patients attempt to relieve by scratching with the finger-nails, may be the cause of spreading the eruption from the primary eruptive places to other parts of the skin. Indeed, Hebra, Kaposi, Riehl, Kreibich, Pusey, and many others maintain that the spreading of eczema is due to the scratching. In fact, we often see a localized eczema ani, which is started and maintained by the continuous scratching from pruritus.

The skin of those who have suffered from eczema, as well as the blood-vessels and the blood itself, must have undergone some changes, otherwise we could not explain the tendency of the eczematous to recurrent attacks. Weidenfeld finds, as an argument against the bacterial origin of eczema, the difference in its clinical forms. The writer, on the contrary, is of the opinion that the difference in the form of eczema is easily explained by the degree of the inflammatory process, and by the power of resistance peculiar to the different regions of the skin. In the same patient, at the same time, we see different forms of eczema, according to the parts of the body affected. In the same patient we may see an erythematous eczema on the face and neck, the papular form on the shoulders and chest, eczema rubrum with abundant exudation on the legs, while on the hands and fingers squamous eczema with painful rhagades may be present. That irritation predisposes the skin to eczema is beyond a doubt; but, though this is undeniable, there must be a condition in the system which causes reaction, and allows the pus-producing germs to show their injurious action.

Indeed, in some cases of senile pruritus the skin may be scratched without showing any pathological lesion of eczema. Any other disease of the skin is liable to predispose it to eczema, and quite often eczema is a manifestation secondary to some other lesion. We see stubborn cases of eczema, which are the result of irritation from continuous scratching in prurigo, lichen planus, or herpes tonsurans. Toxic substances producing toxic dermatitis make the skin liable to eczema. In his hospital

service the writer once had an orderly, who developed a very violent dermatitis affecting the hands, arms, neck and face from preparing iodoform gauze. The dermatitis of the face, neck and arms healed within a week, but the vesicular eczematous eruption, of relapsing type, on the hands and the forearms, lasted for over four weeks. To the same anaphylactic condition Weill has attributed cases of eczema following the application of a $\frac{1}{2}$ per cent. atropine salve. He remarked that a peculiar susceptibility to the atropine remained with the patient, and that sometimes but one drop of an atropine solution or rubbing the arms with a $\frac{1}{2}$ per cent. salve would cause the return of eczema.

The seborrheic condition of the skin, so often prevalent in children, may cause eczema. Under the dry masses of greasy matter on the scalp, the epidermis is easily macerated, irritated, and the staphylococci find a good ground for their development. In infants the eczema often begins on the scalp, and then spreads to the face in the form which is called "crusta lactea."

The spreading of eczema decidedly shows its bacterial origin, and that the toxic elements, which are formed in the skin, are carried into the circulation. The serum of the blood is able to produce antibodies for a certain length of time, but finally it is overcome by their presence; the albumin in the serum is diminished in quantity, consequently the organism is no longer protected. The condition called "anaphylaxis" is present. For this reason, any little irritation is capable of reproducing eczema in the eczematous individual. The matter of general nutrition plays a great role in the reproduction of eczema; since in anemic and badly nourished persons eczema and relapses occur more frequently.

Recalling what has been said, there are three factors which cause eczema: traumatic, chemical or physical irritation; the action of the staphylococci; the reactive property of the skin, which is connected with a peculiar condition of the organism, anaphylaxis.

The variety of eczema—erythematous, papular, vesicular, etc.—is only incidental, and is dependent upon the degree of inflammation and the sensibility of the skin.

Prognosis.—The general practitioner should not regard eczema as an incurable disease. Eczema is curable when it is properly treated. The idea of starving patients suffering from eczema is wrong. Many articles of food, such as cereals, fruits, legumes, are forbidden, for the reason that someone thought fit to interdict them without a scientific investigation. A patient

with eczema should be fed well so as to increase the albumin in the serum in order that the antibodies may be formed to oppose the toxic elements of the micro-organisms. On the other hand, we must persuade the patient to remove, from his diet, articles of food difficult to digest, capable of producing fermentation, and increasing the irritation of the skin.

Treatment.—The general practitioner should relinquish the false idea or the superstition that washing and cleansing an eczematous surface is injurious. Occasionally the writer has been consulted by eczematous patients, who presented lesions, dirty and covered with thick crusts. They excused themselves by saying that the doctor had forbidden them to wash or to use water in any way. Eczematous surfaces should be cleansed and kept as aseptic as possible, just as any other inflamed or suppurated surface. The purulent secretion remaining on the excoriated surface of the skin is exceedingly irritating and causes eczema to become more angry and to spread to the contiguous skin.

Internal specific treatment for eczema does not exist. The patient's condition, concerning his gastro-intestinal functions and general nutrition, should be thoroughly studied. If the patient is a dyspeptic, his digestion should be aided by alkaline mineral waters, or antidyspeptic remedies. If he suffer from constipation, saline waters, purgatives, etc. should be administered; and when the general nutrition is poor, ferruginous preparations should be the basis of treatment.

The recent introduction of the staphylococcic vaccine treatment, although greatly praised, has not yielded the writer good results; therefore, he cannot conscientiously recommend this treatment for eczema.

Local external treatment is the key to success. Acute eczema should be treated like any other dermatitis: applications of aluminum subacetate (2 per cent. solution) and dusting the surface with amylum powder. For vesicular eczema liniment with zinc carbonate or ichthyol is very beneficial. In recurrent vesicular eczema, painting the surface with tincture of iodine, as is done in surgical operations to sterilize the skin, and then covering with a zinc oxide paste, has given very good results. Rhagades must be touched up with a 3 to 5 per cent. silver nitrate solution.

Innumerable quantities of ointments, salves, gelatines, lotions are mentioned in the textbooks. The physician, however, should familiarize himself with the different preparations and their action in order to accomplish the cure of eczema.

THE MEDICAL TREATMENT OF GASTRIC ULCER*

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IN the treatment of gastric ulcer we shall have to consider two forms, namely, the acute and the chronic. The acute form occurs for the most part in young people, especially in young women, with hematemesis as its most frequent symptom, with or without a prodromal period of post-digestive pain or discomfort. The pathological process is acute, with a resulting ulcer the edges of which are flaccid and contractile.

The chronic form of ulcer is seen both in men and women, but predominating in the former, especially between the ages of 25 and 45. In such cases there is a clinical history extending over months and years. The pathological process is chronic, and the type of ulcer resulting presents a hard indurated edge and base. It is highly important for the clinician to recognize these two forms of gastric ulcer, and although the mistake of confounding the two is less prevalent than formerly, nevertheless there is even to-day much loose thought and speech on the subject.

We shall begin by discussing the treatment of the acute form of gastric ulcer, and in doing this we shall have to consider two classes, namely those seen previous to hemorrhage, and again, those in which the latter event has taken place. In all cases of ulcer whether acute or chronic the dictum of Ewald "Wer ein ulcus hat gehört im bett" should be graven on the hearts and minds of the clinician, for although there may be certain forms of chronic ulcer where the patient may perchance be treated fairly successfully while up and about, the fact remains that all cases of ulcer do better when put to bed for a time, and in all cases of acute ulcer to neglect this rule must be accounted as criminal negligence on the part of the clinician.

TREATMENT OF ACUTE ULCER WHERE HEMORRHAGE HAS NOT TAKEN PLACE.

Provided no hemorrhage has occurred either in the form of hematemesis or melena and provided there is no marked or localized tenderness one may begin by feeding the patient at once by giving milk, ounces 2 to 6 every two hours. There is no nourishment as suitable as milk in such cases, the only objection being that there are certain patients with whom milk does

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not seem to agree. This difficulty is however comparatively infrequent and one can overcome it in one of several ways. One may skim the milk or add to it a small quantity of lime water, say two or three tablespoonfuls, or render it slightly alkaline by adding a powder consisting of sodium carbonate and potassium carbonate, each grains 3 to 5, or again one may peptonize it. As a rule, the milk should be given cool, or cold, and it should not be swallowed rapidly, but should be sipped slowly with a spoon. If we find that the milk agrees then at the end of 24 or 48 hours we can begin by adding a raw egg to the dietary. We can begin by adding half of an egg beaten up in the milk, say every other feeding, so that the patient gets two or three eggs a day. We may also vary our feedings of milk by giving junket, or zoolack, and by the fourth or fifth day we may give rice or arrow-root gruel, and at the end of a week, or even before in certain cases, we may give chicken jelly in which very little, if any, salt has been added in the process of making.

We should continue on milk, gruel, eggs, (raw or very soft boiled) chicken jelly, soft custard, chicken or mutton broth (from which all the fat has been removed) for at least a month and no solid food should be given to the patient during this time. Possibly the only exception to this rule is that the patient at the end of a week may be allowed a Huntley and Palmer's breakfast biscuit say now and again with the broth, jelly or milk, and at the end of the first week a certain amount of fresh butter may be taken on the biscuit or in the soft boiled eggs.

All changes in the food, however, should be carefully watched, and the slightest evidence of pain or discomfort should be the signal to discontinue the food causing the difficulty and for a day or so the patient should return to a strictly milk diet. Again do not give these patients food which is distasteful, or which nauseates. Certain persons have strong likes and dislikes, and so far as is possible we should favor these inclinations, for not to do so irritates them and makes them discontented and unhappy, and upsets their nervous system, a thing especially to be avoided in these cases, but furthermore it may lead to even more serious consequences such as severe nausea and vomiting which of course is a positive danger. At the end of three weeks to a month we can begin giving solid food, bread and milk, tapioca, sago and rice puddings, very soft boiled eggs, poached eggs, or a raw egg beaten with their broth also such meats as

boiled cod-fish, boiled squab, young chicken and scraped meat. Fruit should be interdicted for a year. Bowels during the first two or three weeks should be regulated by enemas, or glycerin suppositories; as to any further the reader is referred to sections of the discussion which deals with the treatment of chronic ulcer.

TREATMENT OF ACUTE ULCER WHERE HEMORRHAGE HAS TAKEN PLACE.

Should hematemesis or melena occur the patient should be put to bed, and there should be *absolutely no physical effort* permitted. The patient should be strenuously guarded against anxiety, or nervous excitement as much as possible.

They should be given one dose of $\frac{1}{8}$ to $\frac{1}{4}$ grain of morphia which should not be repeated. The objections which have been raised against morphia are, namely, that it increases the degree of gastric acidity, and that it over stimulates the heart and raises the blood pressure. Such objections are for the most part theoretical, and no theory should ever count against practical experience.

Putting the cart before the horse does not, as a rule, make for progress, and clinicians, more especially the young clinicians, of the day, are too prone to make the practice fit the theory when as a matter of fact, not infrequently the reverse should be the case.

We dwell somewhat at length on the subject because the non-administration of morphia in such cases is, we believe, based on a theory which practice disproves, and because we shall presently have to consider the so-called Lenhartz dietetic treatment of cases of ulcers in the course of which hemorrhage has taken place, a system of treatment which we feel is also based on theories which practical experience disproves. At this part of our discussion we wish to emphasize our idea as regards one part of the Lenhartz treatment, namely, that which permits the patient small quantities of milk even on the first day of a hemorrhage; on the contrary we believe that *absolutely nothing, not even so much as a drop of water or even the smallest piece of cracked ice should pass the patient's lips for at least 36 or 48 hours* and in certain cases possibly three days should elapse before food in any form is given by the mouth.

However this may be, the origin of the Lenhartz treatment was not without its practical side. There had been a tendency to over-starve such patients; a practice based also on a lack of proper knowledge of physiology and pathology. When we come

to the discussion of the treatment of chronic ulcer we shall see that a longer abstinence from the ingestion of food is at times advisable because in such cases we have to deal with an utterly different pathological condition, one in which the eroded vessel has become plugged by a soft thrombus and which from the hard callous condition of the edges and the base of the ulcer may be readily displaced by any functional excitement of the stomach, but even in such cases the abstinence treatment carried out by certain clinicians is we believe quite unreasonably long. In the acute ulcer quite a different condition presents itself, for in such cases the surrounding tissues have lost none of their contractile ability and after 48 hours there is far less danger of the disturbance thrombus or clot from gastric activity.

To starve such a patient for 10 to 15 days is not only against all reason, but is a procedure dangerous to a high degree, and one which has cost many a young patient her life. In other words, although hemorrhage did not produce a fatal result the treatment of starvation effected that end. When in a patient who has suffered from hematemesis, no food has been given for 36 to 48 hours, we should carefully watch for such signs as increasingly rapid pulse especially one accompanied with low tension, cold extremities, subjective feelings of great weakness combined at times with giddiness and noises in the ears, very dry lips and tongue and possibly slight delirium.

Such symptoms which are very apt to be interpreted as the recurrence of another hemorrhage are frequently due to exhaustion owing to insufficient nourishment, and in all such cases food should be given at once.

The objection which we have always expressed to the Lenhartz treatment is that the giving of food of any kind to a patient who has suffered from a gastric hemorrhage before 36 or 48 hours has elapsed has always seemed to us a dangerous procedure in that it risked the chance of another attack of hemorrhage, and as this contention is a just one the unfortunate experience of a number of my colleagues has proven.

The several reasons given by the adherents of Lenhartz for the giving of nourishment during the first day of a gastric hemorrhage are we feel reasons based on theories rather than facts; the principal theories read that by ingesting a certain amount of albuminoid material the excessive acidity due to an excess of HCl existing in such cases is combined, in consequence of which it can no longer work harm

on the impaired mucous membrane; that by giving food we quiet the mobility of the stomach because the starving stomach shows an increased peristalsis; that the exhaustion arising from withholding nourishment endangers the patient already exhausted by a severe hemorrhage and one that has lost a large amount of albuminoid material. The facts read, experience in many cases has demonstrated, that following hemorrhage from a gastric ulcer the secretion of acid is not only greatly reduced but for a time may disappear, so that during convalescence, or for months after such a hemorrhage there is more apt than not to be hypochlorhydria during which the administration of hydrochloric acid may be of benefit; again we have never seen a case of increased peristalsis following gastric hemorrhage; in fact, we believe the shock and the collapsed condition interferes with the normal innervation in these cases to such a degree that there is hypomotility and the amount of mobility in such a condition if any must be exceedingly slight as compared to the motility excited by the ingestion of food no matter of what variety or quality.

Finally, that there is danger in withholding food from a patient who has suffered from gastric hemorrhage. We do not deny this, but such danger only arises when the system of starvation is carried to unwarranted length whereas the amount of exhaustion produced by the withholding of food for 36 or 48 hours in order to avoid a second hemorrhage is an altogether different procedure, and the exhaustion in the latter case is surely less than that which would be produced should a second severe hemorrhage occur, for the latter is not infrequently fatal.

The immediate treatment then of patients suffering from hemorrhage occurring in the course of acute gastric ulcer should be as follows:

1. The patient should be put to bed. Where syncope exists, or where such a tendency is marked elevate the foot of the bed. If the patient is dressed loosen the garments, but this is all that should be attempted.

In other words, the patient should be kept absolutely quiet. They should not even attempt to move or turn from one side to another. They should not be permitted to talk except to express their wants—above all they should be spoken to cheerfully, but in quiet tones. They should never be left alone during the first 48 hours, it gives such patients courage to have someone near at hand provided that person in attendance remains quiet.

2. Give $\frac{1}{8}$ to $\frac{1}{4}$ grain of morphine (without atropine as a rule) by hypodermic. Do not as a rule repeat this dose.

3. Put a light ice-bag, or a Preisnitz dressing (a linen cloth rung out in cold water) over gastric region. A bit of cheese cloth, or the nightgown should intervene between the ice-bag and the skin.

4. In dangerous cases where the hemorrhage has been very severe one may place ligatures about the upper part of the arms and thighs just tight enough to compress the veins without interfering with the arteries. In this way a large quantity of blood accumulates in the limbs, and the internal organs are rendered proportionately anemic. Such ligatures should be loosened by degrees and not suddenly.

5. Where life is threatened by reason of the loss of blood we may have to transfuse the patient. For this purpose a normal saline solution should be used. It must be remembered, however, that any sudden rise in blood pressure may dislodge the blood clot formed at the site of the ulcer and thus produce another hemorrhage, it is wise, therefore to transfuse only small quantities of saline, say 500 cc., at a time and to repeat this amount again if necessary in two or three hours. Such an amount may be given slowly by direct transfusion or by hypodermoclysis, in which latter case, of course, absorption takes place more slowly. At times if collapse occurs hypodermic injections of camphor may be used and hot water bags should be placed at the patient's feet.

6. If the hemorrhage seems uncontrollable and life threatens, irrigations (lavage) with iced water may be tried and has proven successful. The pharynx should be thoroughly cocaineized in such cases and only one thoroughly familiar with the use of the stomach tube should attempt the treatment.

7. The bowels should be moved after the second or third day by means of low enemas, or by suppositories, no laxative should be given after hemorrhage in gastric ulcer for at least three weeks, and if at the end of this period one is necessary, then such mild pills as the pill aloin, strychnine and belladonna, the so-called leptic, or alophen pills are the ones most suitable.

After 36 or 48 hours, the latter period being preferable, unless the symptoms of exhaustion interfere, nourishment should be given in the form of cold milk or peptonized milk. Begin by giving one or two drams (teaspoonful or dessertspoonful) doses every 15 minutes, and if this amount of nourishment is well taken at the end of an

hour or two increase it to four drams (tablespoonful) and if this is well taken care of then give two to four ounces every two hours. After the second day a nutrient enema may be given two or three times in the 24 hours, but this may be discontinued on the fifth day because by this time the patient can take six ounces of milk every two hours and after the third or fourth day a certain number of raw eggs may be beaten up in milk. The case after this may be treated according to the plan mentioned in treating acute ulcer without hemorrhage. After the second day the Lenhartz treatment may be carried out, but my objection to the latter is that it contains too many eggs; to my mind Einhorn's diet as outlined for the treatment of chronic ulcer is much more suitable in such cases after the second or third day.

As regards drugs, no remedy should be given during the first week following a hemorrhage with the possible exception of strychnine hypodermically as a tonic, or codeine for the quieting effect on the pain should this persist, which, in the case of hemorrhage following acute ulcer is rare. Until the first week has passed after a hemorrhage codeine or opium if it is necessary to give them, may be combined with the ext. of belladonna and given in a suppository, a good combination in such cases is,

Codeinæ grn. ss.-i
Ext. Belladonnæ grn. $\frac{1}{8}$ — $\frac{1}{4}$
Ext. Hyoscyami grn. ii
M. Ft. Suppos. No. 1.

One such suppository every night, or one every morning and night or even every six hours.

Again if local tenderness persists in spite of the dietetic treatment and the Preisnitz dressings, a very rare circumstance in the case of acute ulcer of the stomach, the treatment as suggested by Fenwick in the case of chronic ulcer exhibiting like symptoms under similar conditions may be tried, namely, small blisters may be applied over the affected area and the raw surface dusted over with half a grain of morphine acetate. Personally I have never had to resort to this treatment.

If deemed advisable bismuth subcarbonate in grn. xx to dram 1 doses may be given two or three times daily before meals, or the preparation known as lac-bismuth may be given in doses of drams 4 three or four times daily with the view of protecting the raw surface of the ulcer and as a means of reducing the severe sensitiveness which may exist. This does not mean, however, that such remedies are given in order

to reduce an excess of acid. In acute ulcer previous to hemorrhage there may be an excess of acid but this is by no means always the case, in fact we doubt whether it is the rule, and in cases of acute ulcer where hemorrhage of any marked degree has occurred we have probably more often than not to deal with a condition of hypochlorhydria.

The treatment of chronic ulcer differs radically from that of acute ulcer, for in chronic gastric ulcer, as we have already mentioned, the indurated and callous edges of the ulcer and the usually concomitant chronic gastritis present an altogether different pathological condition to be dealt with. But the cases of chronic ulcers also divide themselves into two classes—namely, those in which hemorrhage has recently occurred, and those in which this event has not taken place. As to the treatment of chronic ulcer in which hematemesis or melena has occurred, such cases are to be treated in identically the same manner as the cases of hemorrhage occurring in acute ulcer.

The only variation in the treatment being that where hemorrhage occurs in the case of a chronic ulcer it is advisable at times to prolong the period of total gastric abstinence to a length of from three to five days; during which the patient is nourished by nutrient enemata. Also, in no case of chronic gastric ulcer should heat in the form of hot compresses or poultices, be applied to the abdomen unless five to six months have elapsed since the last hemorrhage.

THE TREATMENT OF CASES OF CHRONIC GASTRIC ULCER IN WHICH HEMORRHAGE HAS NOT OCCURRED FOR SIX MONTHS.

A. The patients should be put to bed for from two to four weeks, or at times for a much longer period, six to eight weeks. The longer period is often necessary when the condition of ulcer is complicated by marked anemia, neurasthenical condition or where there exists concomitant severe gastritis, or where there is partial closure of the pylorus produced by such a gastritis, or by the extent and anatomical situation of the ulcer itself. Such patients should be kept from all business or household worries or cares of whatsoever nature. A failure to recognize the importance of this means many times a failure in treatment.

B. We proceed to give the Leube-Ziemesen cure. For from two to three weeks from seven o'clock in the morning until seven o'clock in the evening the patient's

abdomen is kept covered with hot flaxseed poultices. During the time which the flaxseed poultices are omitted, that is from seven o'clock in the evening until seven o'clock in the morning, the abdomen is covered by a Priesnitz dressing, i. e., a linen cloth rung out in cool water and covered by a light flannel, or better, oiled-silk. Care should be taken in the application of the poultices that they do not burn the skin. Before these applications the abdomen should be greased with vaseline, or carbolated vaseline, and a piece of cheese-cloth or linen should be placed between the poultice and the patient's skin. We repeat that in no case of chronic gastric ulcer should heat in the form of hot compresses or poultices be applied to the abdomen unless five to six months has elapsed without hemorrhage having occurred. In such case we use the term hemorrhage to signify an amount of blood more than that occasionally appearing as occult blood in the stool, or than that seen as streaks of blood throughout the gastric mucus of patients who have vomited, or in whom gastric lavage has been performed. Again neither hot stupes nor poultices should be applied when the localized tenderness is very marked, or where any signs of peritoneal inflammation exist.

C. The following symptoms, or conditions require total gastric abstinence for from 24 hours to five days during which no nourishment whatsoever should be given by the mouth, but the patient's strength should be kept up by means of nutrient enemata.

a. Wherever nausea and vomiting are a prominent symptom.

b. Wherever pain, especially the localized tenderness, is very marked.

c. Wherever there are signs of a partial closure of the pylorus with, or without, pyloric spasm. Such a condition is manifested by signs of marked stagnation, or retention, of food.

DIETETIC TREATMENT

As regards dietetic treatment it must be stated at the onset that there is no one specific diet for the treatment of chronic gastric ulcer, nor again does any one specific diet agree with all patients.

For instance, most people can take milk, if not raw at least boiled or modified in one form or another. Milk forms the basis, and correctly, for all the so-called ulcer cases. Yet it must be remembered that at rare intervals we do meet with people suffering from gastric ulcer who cannot

take milk. As we have already said when speaking of the treatment of acute gastric ulcer, a possible distaste on the patient's part for certain specific foods should make us seriously consider the omission of such food from the dietary, otherwise the repugnance evoked by such food, with the possible result of nausea and vomiting, is a far more serious matter than non-adherence to a dietetic rule, no matter from how high an authority such a rule emanates. Here reason should temper memory. There are certain principles, however, which should be followed in the selection, preparation and administration of all foods.

1. The food must not irritate either mechanically or chemically.

2. It must not be too great in volume never more than 250 Cc. at a feeding, that is a teacupful.

3. It must be of as high a caloric value as possible consistent with the above conditions and withal as palatable as possible.

4. All food should be taken slowly; sipped, or taken from a spoon. The food should never be too hot, nor yet, as a rule, should very cold foods be permitted, there are however certain exceptions to this rule.

5. The diet should be so arranged that the patient has a proper amount of undisturbed sleep at night; at least 7 to 8 hours.

As milk forms the basis of the dietary for at least the first two or three weeks in every ulcer case given by the authorities on the subject, there must be a definite reason for this. Indeed it requires but a passing thought to tell us why this is so, for if we but remember the principles just given in the selection of food we find that milk more nearly fills the requirements than any other known substance. It is wise, therefore, to begin the nourishment of the patient with milk, or one of its preparations whenever possible.

Raw, boiled, sterilized, skimmed or peptonized milk, or milk modified in one or another way may be tried.

At times the mere changing of the flavor of milk makes it palatable and digestible to patients who otherwise refuse to take it, or with whom it disagrees. A small amount of coffee, or tea, one or two tablespoonfuls to the glass, or a mere trace of vanilla may help in this way. Butter-milk, or milk diluted with lime water, or the French Vichy Celestine may be tried, or again such preparations as zoolack, diluted or not, according to taste. Again the milk may be diluted with barley, rice, or oat-meal water.

Broadly speaking the milk given in such cases varies from 150 Cc. every hour, to 250 Cc., or 300 Cc. every two or three hours. To this amount of milk a certain amount of cream may be frequently added thus enhancing the caloric value. Within a few days gruels or rice, arrow-root, farina, Indian-meal or barley may be added, or the milk may be combined with such a prepared food as Benger's, or a certain amount of zweiback, rusk or Huntley and Palmer breakfast biscuit may be finely crumbled and thoroughly soaked in the milk. Raw eggs may be beaten up in the milk and two to five eggs may be given in this way during the twenty-four hours. Presently chicken jelly, chicken broth, or mutton broth (from which all fat has been carefully skimmed) may be added to the dietary, and such broths may contain thoroughly cooked farina or rice, or into a cupful (250 Cc.) of such a broth you may drop and beat up a raw egg, or add such a powder as sanatogen in one dram doses. Later such cereals as rice, cream of wheat, farina may be added—also soft-boiled, or very lightly poached eggs, soft custards. Fresh butter may now be added to the cereals or to the eggs. Finally such meats as boiled cod, chicken or squab, at first put through a sieve, and later given boiled, provided the patient will eat slowly and thoroughly masticate such foods. Also sweetbreads, calves-brains, and finally scraped-meat may be given once daily varied with any of the above mentioned foods.

D. *Drugs.* The first question which confronts us in the giving of drugs, and their relation to the cure of gastric ulcer, is that one which every clinician should try to answer before attempting by this means to cure any disease whatsoever, namely, why does he give drugs at all? There are three cardinal principles for giving drugs in gastric ulcer, especially that of a chronic type; (1) they are given for the relief of pain; (2) for the reduction of hyperacidity; and (3) for the healing of the ulcer, either directly or indirectly. More often than not one remedy may act in all these directions. We also give drugs to relieve certain concomitant conditions such as anemia or constipation.

Drugs for Reducing Hyperacidity.—It was for the reduction of hyperacidity and the effect which it had in flushing out the alimentary tract with a consequent relief of congestion and with the hope that in this it might be a material aid to the healing of the ulcerative process that the well known

Carlsbad treatment was instigated by Leube and Ziessen.

It consists in the use of either Carlsbad water (half a pint) or Carlsbad salt, one to two level teaspoonfuls in the same quantity of water heated to 122° F. given twice daily, the first portion taken in the morning $\frac{1}{2}$ to 1 hour before breakfast, and the same quantity repeated at night before going to sleep. Instead of the natural Carlsbad salts some authors give an artificial Carlsbad salts of the following formula: Sodium sulphate 50, Sodium Bicarb. 40, Sodium Chloride 10. Although we have no doubt of the efficacy of this treatment in certain cases, we agree with Einhorn when he says, "I do not believe the Carlsbad salt is in any way essential. In most of my cases of gastric ulcer I have omitted the so-called Carlsbad drink cure, and have obtained results equally satisfactory as when the salt was employed." Indeed so far as we are personally concerned we feel that sodium phosphate in dram 1, to dram 2, doses given in the same way is at times much less distasteful to a patient and quite as efficacious. But there is another, and a far more agreeable way by which to obtain a result similar to that of the so-called Carlsbad cure and that is the giving of magnesia, especially that form known as milk of magnesia, which may be given plain, or diluted with a small amount of water, in doses of drams 2 to 4 several times daily, or what is still better such amounts may be added to several, or each, of the milk feedings. This is not only the most agreeable way to give an alkali which acts directly on the reduction of the hyperacidity and thus relieves pain, but the preparation acts as a mild laxative as well, and one which we can control by the gradation of the dose.

In all cases where the acidity runs high, and such is apt to be the case in gastritis when of the chronic type, one of the sovereign remedies is belladonna, given preferably in the form of the extract three times daily in from $\frac{1}{8}$ to $\frac{1}{4}$ grains at a dose. Not only does it lessen the degree of acidity, but it frequently relieves better than any other remedy pain and spasm should these exist. In giving belladonna, however, it must be remembered that not infrequently we meet with marked idiosyncrasies as regards the drug and certain persons are highly susceptible so that 1/16 or even 1/32 of a grain may cause a reaction. Oddly enough in such persons these small doses seem to work quite as efficaciously as the larger doses in the normal, or less susceptible cases.

Another excellent treatment, especially where there has been marked sensitiveness or pain after eating, is the administration of large doses of bismuth carbonate as recommended by Fleiner. One to two drams may be given stirred up in a little water before the first morning meal, and forty grains to one dram may be given in addition twice during the day.

The bismuth and the belladonna (the latter in a pill) treatment can be advantageously combined, and together with them milk of magnesia may be added to the milk. This treatment is one which we frequently use as each of these remedies enhances the action of the other, and acting favorably to a greater or less degree, directly or indirectly on the pain, the acidity, and the healing of the ulcer, and in addition the magnesia aids in keeping the bowels regular—in regard to the latter, we would state that so far as our own experience goes, the large dose of bismuth never seems to interfere with the normal intestinal peristalsis.

Another valuable drug in the treatment of chronic gastric ulcer, especially if there is a hypersthenic state of the mucous membrane, or where pain and vomiting are marked symptoms, is nitrate of silver. This really excellent remedy may be used in one of several ways, remembering that one-half hour should always elapse between its administrations and the ingestion of food.

If the patient is accustomed to the stomach tube, and if no hemorrhage has occurred for six months, then one quart of a solution of the strength of 1-5000 to 1-2000 may be used in gastric lavage once daily, one-half hour before the first morning meal. The passage of a tube in a patient thoroughly accustomed to its use involves practically no strain or effort, and administered in this way the results obtained by nitrate of silver are more efficacious and satisfactory than when given by any other method. It should be remembered that we are speaking of chronic ulcer where no hemorrhage has occurred.

The stomach tube used should always be soft, pliable, and absolutely smooth, *and no tube should ever be used with an opening at the end, such openings should always be placed at the side of the tube.*

In cases where the introduction of the stomach tube would be a dangerous procedure we can give the nitrate of silver in solution. One-fourth to one-half of a grain may be given every morning dissolved in a tablespoonful of distilled water one-half hour before the first feedings. After two weeks an intermission should occur of 7 to

10 days. Or the following prescription may be tried.

Argent. Nitr.....0.3 Gm. (gr.v.)
Aq. Destil.....180.0 Cc. (3 vj)
In vitro nigro.

Sig. A tablespoonful in a wine glassful of water three times daily, half an hour before meals. After having used up this quantity, the dose may be gradually increased prescribing 0.4-0.6 grams of silver nitrate to 180 of water. The silver nitrate may be used for about two or three weeks and then discontinued. The pains usually disappear after the completion of the first week's medication.—Einhorn.

Later on, if we wish to combat the anemia so frequent in these cases, only the blandest preparations of iron should be used. The pyrophosphate given in doses of 1 to 2 grains in solution or capsule is an excellent preparation, as also are such preparations as ferratin in 5 grain doses or triferrin in 5 grain doses or hemabald's (plain or arseniated) in tablespoonful or dessertspoonful doses of the preparation known as ovoferrin in dessertspoonful doses. All such iron preparations should be given three times daily after meals.

GOITER OR GRAVES DISEASE; WHICH? THE TREATMENT

Under the above title B. Robinson, of New York, wrote the following interesting note to the "American Journal of Clinical Medicine," for March, 1913:

During several summers of late years my attention has been directed to the relative frequency of large necks in young women who are residents of a village in northern New York. When examined, the enlargement is found to be due to parenchymatous goiter. The thyroid gland is not extremely vascular. Occasionally the eyes are staring, but not noticeably prominent. The skin is pale. The menses are irregular. Nervousness is marked. Intermittent flushing appears upon the neck and face. The affection occurs sometimes with an apparent cause; sometimes without one.

The etiology of these sporadic, or endemic, cases of goiter is difficult to determine. It may be the water, although this does not seem probable, because it is very abundant, comes from a distant spring in the mountains, and, according to analysis, is of exceptional purity. The region itself is very healthful, with mountains on either side and facing a large lake.

One woman, with whose case I am familiar, has either a form of Graves's disease or else myxedema. A former patient, male

adult who died about two years ago, had a pronounced soft goiter, but otherwise enjoyed good health.

Two girls at puberty, whom I have especially watched, and whom I placed upon iodide of iron, hydriodic acid, iodine, and tannin—believing for a time that they had simple goiter—apparently were benefited; but the size of their necks did not notably diminish. Then, through reading a circular containing commendations from prominent medical men in Germany, I was led to make use, in these patients, of *arsenoferratose*. After two months' treatment, the decreased size of their necks and their changed appearance and behavior, which both showed great improvement, impressed me very much.

I have not, hitherto, seen as good and rapid effects produced by any other treatment I have tried or observed in similar cases. I hope that the combined use of arsenic and iron in the preparation referred to, or another equally good, may be effective in a disease or diseases hitherto obscure as to nature and origin.

TREATMENT OF VARICOSE ECZEMA OF THE LEG

For the treatment of varicose eczema of the leg, which is well known to be a most resistant form of eczema, a combination of lenigallol and silver nitrate is, according to Wehner, of good service. The procedure is as follows:

All the moist regions of the eczema are dabbed with plugs of cotton wool soaked in a 5 per cent. solution of silver nitrate until they appear dry. In doing this some pressure must be exerted. When the eczematous surface is dry, which may take some minutes, a little piece of gauze covered with a layer of 5 per cent. lenigallol-zinc paste is applied and fixed with a bandage. After three days the secretion usually ceases, but should this not be the case an interval of one to two days is allowed to elapse and the lenigallol treatment is then repeated. This treatment should not take place on more than three consecutive days, but may be repeated as often as desired, provided the intervals mentioned above be allowed. In the interim the author recommends the employment of zinc paste or zinc oil. The action of the silver-lenigallol treatment is due to the formation of a thin coating of silver albuminate, which on reduction by lenigallol becomes dry and firm and hastens the healing of the eczema. Lenigallol also relieves itching, an action specially marked in the method mentioned above.—E. Merck's Ann. Report, Vol. XXV.

Progress in Materia Medica and Therapeutics

PITUITARY EXTRACT IN ECLAMPSIA

That pituitary extract injections may be life-saving in eclampsia is very evident from a case observed by Krakauer. When first seen, the patient was in deep coma and the slightest sensory disturbance provoked severe convulsions. Chloral and morphine were without the slightest effect, so that the patient had to be kept almost continuously under chloroform. The cervix was entirely closed, so that a catheter could be introduced only with the greatest difficulty. No labor pains appeared and hardly any dilatation of the os was apparent. Pituitary extract was then injected, and two hours later a fully developed dead child was expelled. The placenta soon followed spontaneously, and there was virtually no after-bleeding. The patient very soon regained consciousness and the albumin in the urine rapidly disappeared. The death of the child must be ascribed to the eclampsia and not to the drug injected.—Berl. Klin., Woch., Dec. 2, 1912.

TREATMENT OF DIABETIC ACIDOSIS

In severe cases of diabetes with pronounced acidosis, M. Lauritzen advises a diet consisting of only small amounts of proteid (particularly vegetable proteid and egg albumin) in order to diminish the glycosuria. The carbohydrates necessary are derived from the vegetables and from fruits with small carbohydrate contents. From time to time a little flour and cream are permitted. The best fats to employ in these cases are washed butter, bacon and pork fat. Alcohol is to be preferred in the form of wines. Roasts or fish may be allowed sparingly if there is no increase in the percentage of sugar excreted. In the severest progressive cases large doses of sodium bicarbonate are necessary. An absolute milk diet or a mixed milk diet with vegetables and fruit may be tried. Sometimes the diet may consist only of vegetables, fruits poor in carbohydrates and cream with occasionally a day of only vegetables. An oatmeal cure may be effective, but should always be preceded and followed by a day of vegetables. In milder cases of acidosis the acetone will disappear spontaneously as soon as the sugar is reduced. The patient here should gradually

be led to a strict diet with moderate amounts of proteid. Where the acetone persists, 5 to 15 Gm. sodium bicarbonate should be given daily. In every case where operation is intended the amount of bicarbonate taken should be increased and the patient should take vegetables only for a few days, so that the amount of sugar is reduced as much as possible and the urine is distinctly alkaline.—Therap. d. Gegenwart, Feb., 1913.

EFFECT OF DIGITALIS ON VARIOUS FORMS OF HEART DISEASE

Theophil Schrenk has studied the effect of the preparations of digitalis on the various forms of heart disease since much difference of opinion still exists as to the efficiency of the drug in certain lesions. In 17 cases of mitral insufficiency in various stages of decompensation, a prompt reaction was obtained in 15. The dose employed was 0.3 to 0.4 Gm. powder of *Digipuratum* during the first days. In four cases of pure mitral stenosis, no effect was seen in two. One, with pronounced hepatic congestion remained entirely refractory while the second only showed a slowing of the pulse. The dose was 0.1 Gm. powder or *Digipuratum* 2 to 4 times a day. Good results were seen in 29 out of 31 cases of mitral insufficiency combined with mitral stenosis. Nothing was accomplished in two out of nine cases of aortic insufficiency. Four cases of tricuspid insufficiency came under observation and three of these were complicated by mitral lesions. Digitalis in the customary doses here had little effect. The action of the drug was also less satisfactory in combined aortic and mitral lesions. Here nine out of thirty did not react in any way. A good effect was the rule in chronic myocarditis without arteriosclerosis, acute myocarditis and in the heart affection of goitre. If arteriosclerosis complicates the condition, less can be expected from digitalis or its preparations, and here it may even happen that the amount of urine voided is diminished. In exudative pericarditis with hepatic congestion, digitalis accomplished nothing except that it slowed the pulse somewhat. In cardiac insufficiency, due to nephritis the results were better where there was no arteriosclerosis. Undesirable reactions were seen in cases where the heart muscle

was in a degenerated condition and in cases where only one ventricle was weak as in the insufficiency of the right heart owing to pulmonary disease. The presence of arteriosclerosis will frequently interfere with the free flow of the urine.—Muench. med. Woch., Dec. 31, 1912.

TREATMENT OF EPIGASTRIC HERNIA

In mild cases of epigastric hernia, reduction with the application of an adhesive plaster dressing will generally suffice to bring about a cure. With severe pains or cough, morphine may be required. In the presence of hypersecretion, this should receive due consideration. Where the treatment is not successful, the patient should be operated, though recurrences have been observed in about 20 per cent. S. Wygodzinski has made the observation that in many cases of even large epigastric hernia operation is not necessary since Fibrolysin will promptly cure the condition without danger of recurrence. Thus, in one case quoted, one injection of 2,3 Cc. Fibrolysin was given every other day subcutaneously into the neighborhood of the hernia until the patient had received 20 injections. The effect was quite pronounced; the hernia promptly disappeared, the patient gained in weight and the marked hyperacidity of the stomach was corrected. There was also a favorable influence upon the bowels without after-effects of any kind.—Medico, 1912, No. 19—20.

BLOOD TRANSFUSION

T. B. Cooley and J. W. Vaughan, of Detroit, remark that, while the Crile method of direct transfusion is not difficult for one with special training and practice, others may experience difficulties with it that render it almost impracticable. For this reason they describe a case which they think worth while reporting because of the successful method employed, which can be used by anyone. The patient was a baby 2 days old, who was suffering from severe hemorrhages from the stomach and bowels, until it had become nearly exsanguinated. Horse-serum failed to check the hemorrhage and Crile's method was attempted. Owing to the smallness of the collapsed veins of the child, who by this time was cold and pulseless, immediate action was imperative so they concluded to try taking the blood from the vein of one of themselves into a glass syringe and injecting it into the child's veins before clotting could begin. The blood was drawn from the basilic vein of the donor into a glass syringe into which

1 Cc. of physiologic salt solution had been previously drawn. It was filled to nearly its full capacity of 10 Cc., the sharp needle changed to a blunt and the blood injected rapidly into the child's vein. This was followed immediately by one of salt solution. Improvement appeared within fifteen minutes in the previously imperceptible pulse, and 10 Cc. more were injected. From this time on the recovery was rapid and uneventful and the child was saved. The total amount of fluid, blood and salt solution injected was not accurately measured, but was probably between 20 and 50 Cc. The father's serum had been injected prior to the transfusion and there were no further hemorrhages. Although the authors say that many bloods will coagulate within three to three and one-half minutes, this affords ample time to carry out transfusion in the way described. Of course, it is essential to work rapidly. It is their intention to make a further study of the method with the idea of developing a special syringe and possibly some means of delaying coagulation. The method will be especially valuable in cases where only a small amount of blood needs to be transfused. Jour. A. M. A., Feb. 8, 1913.

NEW CHEMOTHERAPEUTIC STUDIES

It has been shown in the animal experiment that a substance closely related to quinine (ethylhydrocuprein) possesses a pronounced toxic action toward the pneumococcus, so that it is possible to save animals injected with usually fatal amounts of this germ. An interesting contribution to the subject of chemotherapy has been made by R. Levy, who was able to show that the streptococcus mucosa shows the same vulnerability. If animals are infected with ten times the amount of culture necessary to kill under ordinary conditions they will survive if they receive an injection of ethylhydrocuprein within six hours. Even if 2,000 times the fatal amount is employed the animals will only die on the fourth or fifth day, while the control animals succumb on the second day. The ethylhydrocuprein is used in the form of a 2 per cent. solution in olive oil and 0.4 Cc. are injected for each 20 Gm. mouse. The injection is repeated for four successive days. If the treated animals were reinfected after eight or nine days they generally survived the infection longer than the control animals, showing that a certain degree of immunity had developed.—Berl. Klin., Woch., Dec. 30, 1912.

TOXICITY OF SALICYLATES

P. J. Hanzlik, of Cleveland, O., publishes a paper giving the results of a study of the toxicity of the salicylates, utilizing the clinical records of the Lakeside Hospital at Cleveland. The records of about four hundred patients were studied, all aged 16 or over, and the statistical data compiled. The "median" or "mean" toxicity was calculated by the method of Laplace, and the chief results are stated to be the definite establishment of the mean toxic dose of the different salicylates; that there is no difference between the toxicity of the synthetic and natural sodium salicylates and oil of wintergreen, but that there is apparently some difference with diplosal and aspirin. The toxic dose is not modified by race, age, sex, various diseased conditions and therapeutic response. The tabulated results in regard to each point are given, and the general result is summarized as follows: "1. The mean toxic dose of the different salicylates for adult males and females, respectively, are 180 and 140 grains of the synthetic sodium salicylate, 200 and 135 grains of the natural sodium salicylate, 120 minims of the oil of gaultheria (methyl salicylate), 165 and 120 grains of acetylsalicylic acid (aspirin), and 100 and 83 grains of salicylosalicylic acid (diplosal). For females the toxic dose of the salicylates is approximately 80 per cent. of that for the males. The toxic dose of diplosal is about 50 per cent.; that of methyl salicylate and aspirin about 60 per cent. of that of sodium salicylate. Conversely the efficiency of diplosal is about twice, that of oil of gaultheria and aspirin about one and two-thirds times that of sodium salicylate. The salicylic acid content of the different salicylates is as follows: sodium salicylate, 85.6 per cent.; diplosal, 106.2 per cent.; aspirin, 77 per cent.; and methyl salicylic, 90.7 per cent. 2. The toxic dose of the synthetic sodium salicylate for the majority, or about 68 per cent. of individuals of both sexes lies between 100 and 200 grains. Practically the same is true of the methyl salicylate. 3. The toxic dose of the different salicylates is not influenced by age between 16 and 75 years. 4. The toxic dose of the synthetic salicylate is the same in white and colored races. 5. The toxic dose of the different salicylates is practically the same in various diseased conditions. 6. The therapeutic response in various diseased conditions does not modify the toxic dose of the synthetic salicylate. 7. The therapeutic efficiency of the synthetic sodium salicylate is greatest in rheumatic fever and, not infrequently, partial relief and even complete relief is obtained in other condi-

tions. 8. Presumably, there is no relation between the occurrence of albuminuria in febrile and afebrile conditions and toxic doses of the synthetic salicylate. 9. Individuals show idiosyncrasy toward toxic doses of the synthetic salicylate, but no connection was found between these idiosyncrasies and the factors of age, sex, race and diseased condition. The idiosyncrasy generally varies in the same patient, and is not influenced by previous salicylate medication.—*Jour. A. M. A.*, March 29, 1913.

IODIDES IN TUBERCULOSIS

Dr. Nieveling is of the opinion that the iodides are very serviceable drugs in pulmonary tuberculosis. In almost all cases, they are potent expectorants and the mucus is rendered less viscid and can be brought up more easily. The dyspnea so often present is also favorably affected. Some tubercular patients often complain of a disagreeable palpitation of the heart and the heart-tonic effect of the iodides will here be available. There usually is no influence upon the temperature and febrile cases are generally unsuitable. There can be no doubt that the cicatrization and induration of tuberculous tissue is favored and the caseation checked. The use of drugs is not supposed to replace sanitarium treatment in this disease but it is a valuable adjuvant.—*Berl. klin. Woch.*, Oct. 14, 1912.

ICHTHOFORM IN ABDOMINAL TYPHOID

Thirty-three cases of typhoid have been treated with Ichthoform by H. Haller with such splendid results that he regards the drug almost a specific. From the third day of medication, the fever promptly dropped and the temperature was generally down to normal in the second week. In all cases, the mind remained perfectly clear and headache was only very rarely complained of. Owing to the considerably shortened course of the disease there was very little emaciation and convalescence was considerably shortened. The epidemic was by no means a mild one and it is likely that with other methods of treatment the mortality would have been as high as 35 per cent. The dose employed for adults was 0.5 Gm. three times daily up to every three hours, depending upon the severity of the case and the frequency of the stools. The drug may be combined with opium or with calomel. The drug was also employed in diarrheas of adults and children of various etiology and almost always cured the condition in a short time.—*Therap. d. Gegenwart*, Nov., 1912.

SALVARSAN IN TABES

J. J. Zaun, of St. Paul, reports a case of tabes without syphilitic history but giving a positive Wassermann reaction that showed the characteristic symptoms—loss of patellar reflex, Argyll Robertson pupil, incoordination, cramps, gastric crises, etc. It was first treated with mercurial inunctions and iodine; the patient was then given 0.6 Gm. of salvarsan, which was repeated some two and a half months later. A month later the examination showed absence of the Argyll Robertson pupil, improvement in the coordination and less marked Romburg sign, together with gain in weight and general feeling of well-being. The case is reported because of the disappearance of the Argyll Robertson symptom following the use of salvarsan which the author has not seen previously noticed.—*Jour. A. M. A.*, March 1, 1913.

COPPER IN TUBEROULOSIS

In a preliminary note H. J. Corper, L. DeWitt and H. G. Wells, of Chicago, report their experiments to test the value of copper compounds in experimental tuberculosis. Its use would seem logical on account of its general germicidal action and slight toxicity for higher mammals, and they have therefore carried on a series of experiments to test its efficiency in tuberculosis. The recent papers by Von Linden, Meissen and Strauss, which report rather sensational results, are noticed. These authors claim an especial affinity of copper for tuberculous tissues which is contrary to the experience of Corper, DeWitt and Wells in a considerable number of experiments with laboratory animals. Rabbits and guinea-pigs have been employed, the former inoculated in the eye and the latter subcutaneously with human tubercles. The copper compounds used included copper sulphate, copper acetate, copper oleate and copper salts of amino-acids. These have been administered by feeding and by intramuscular injections, and analysis of both normal and tuberculous tissues has shown both the entrance of copper into the circulation and its deposition in the tissues, but no evidence of any affinity to tuberculous tissues. The authors have had no experience with the complex copper-lecithin compounds, but they doubt whether it will have any advantages over a copper salt of any copper high fatty acid, such as the oleate. They would not deny the possibility of favorable results but have not had them experimentally and have made no clinical observations whatever.—*Jour. A. M. A.*, March 12, 1913.

BENZOL IN LEUKEMIA

The history of the use of benzol in leukemia since its first use for this condition by von Koranyi, is given by F. Billings, of Chicago, who reports the results of this treatment of five patients. Three were men and two women. Four suffered from myelogenous leukemia and one from a rather atypical type of lymphoid leukemia. All had received x-ray treatment and one had received a rather severe x-ray burn. The x-ray treatment was continued in all cases excepting this one. The benzol was usually given in gelatin capsules filled at the time of administration, but one patient received the drug in emulsion. It was given soon after meals and at bedtime, beginning with 7 minims, soon increasing to 15 minims. All patients complained of eructations of benzol-smelling gas and burning in the stomach was a common symptom. Two patients complained of dizziness on standing. One patient left the hospital and, misunderstanding the dosage, increased it to 160 minims daily, causing a severe toxic erythema and pruritus of the whole body and extremities, which disappeared after a discontinuance of the drug, and no further trouble was experienced after renewing the proper dosage of 60 minims a day. No other medicine was given except the necessary laxatives and stomachics. As a rule, the patients were kept at rest. The urine did not contain a notable or perceptible increase of uric acid, nor was there any general noticeable disturbance coincident with the great destruction of leukocytes that occurred. The chief noticeable results of the medication were in two patients a temporary rise of leukocyte count not observed in the others, and in all a rapid fall of the number of leukocytes and a corresponding rapid diminution of the size of the spleen, much more marked than that following x-ray treatment alone. There was an improvement of the red-cell count and hemoglobin in all the myelogenous cases and a rapid disappearance of the small multiple lymph-nodes in the patient with lymphoid leukemia, the hemoglobin and leukocyte count remaining unaltered. The blood-picture was confusing from the number of degenerated leukocytes. In spite of the moderately disagreeable effect on the stomach, the general condition of all the patients improved. The continuance of the x-ray treatment in most of the patients prevents a positive conclusion as to the result of benzol treatment alone, but it may prove a most valuable drug if it is found to be effective without the use of the x-ray. From previously published reports, Billings

says, as well as from this experience, "it seems justifiable to conclude that benzol in the doses given may at first stimulate the bone-marrow, but very soon the effect is to make the leukocytic marrow hypoplastic. It also seems to render the erythrocytic marrow hyperplastic. This may seem paradoxical, but is apparent clinically. One is impressed with the drug as a powerful agent—a two-edged sword, which is apparently a remedy of great promise in leukemia, but which used carelessly may defeat the purpose of its use and produce an equally serious condition, namely, a plastic grave anemia, hypoplastic bone-marrow and a fatal termination." Billings advises the use of only pure benzol and caution in its use, carefully watching its effects by frequent examinations of the patient and his blood. His report is made now with the hope of stimulating others to try the remedy in leukemia and thus add to our knowledge of its clinical value.—*Jour. A. M. A.*, Feb. 15, 1913.

* TREATMENT OF ANTHRAX

There is still considerable difference of opinion among surgeons as to the proper treatment of malignant carbuncle. While some believe in excision, incision or cauterization, others are more in favor of a conservative treatment. The best results have been obtained by K. E. Veit from the latter. He keeps the affected part absolutely at rest and applies gray ointment very freely. At the same time the heart is stimulated and alcohol is given in large doses. Thus in 49 cases observed at the clinic of V. Bramann there was a mortality of only 4 per cent.—*Muench. Med., Woch.*, Dec. 17, 1912.

TREATMENT OF BRONCHITIS IN INFANCY AND CHILDHOOD

G. A. Sutherland writes that the patient should be confined to bed during the acute pyrexial stage and should be given a restricted fluid diet. Warm demulcent drinks may be given freely. If the cough is dry and irritating, steam inhalations may give great relief. If the secretion of mucus is free or over-abundant, the use of steam is contraindicated. The steaming should not be continuous, but should be employed for fifteen minutes at a time every hour or two. If there is dyspnea resulting from spasm of the bronchial tubes the application of hot fomentations to the back and front of the chest will often give relief. A dram of turpentine may be added to the fomentation. If plain fomentations are

used they may be applied continuously for an hour and then intermitted. In many mild cases of bronchitis it will suffice to apply to the chest twice a day a stimulating liniment such as the following:

Liniment. Terebin. acet. (N. F.).....	℥iij
Liniment. Belladon.....	℥j
Olei Dulcis.....	℥iij

At the outset of the attack the bowels should be freely opened. Three grains of rhubarb powder and two grains each of gray powder and magnesium carbonate may be given at night and followed by a dram of sodium sulphate or magnesium sulphate in the morning. A simple febrifuge mixture such as the following may be ordered:

Liq. Ammonii Acet.....	℥xv
Potassii Citrat	grn. v
Tinct. Aurantii	℥v
Aq. Camphoræ	ad. ℥j

As regards cough mixtures the author points out that most of these tend to upset the child's digestion. Prescriptions are common in which one finds drugs to increase expectoration or to diminish expectoration or to do both at the same time. In the early stage of bronchitis, when secretion is defective and a harsh irritating cough may be associated with dry catarrh of the tubes, potassium iodide (grn. ii) and ammonium carbonate (grn. ss—j) may be added to the above mixture or given separately as long as necessary. Only when secretion is over-abundant it is necessary to interfere in order to diminish it. This may be effected by the following:

Tinct. Belladon.....	℥iiv
Ac. Nitrohydrochlor Dil.....	℥iij
Glycerin	℥x
Inf. Gent. Co.....	ad. ℥j

M. et Sig.: ℥j every four or six hours.

When the patient is troubled with a persistent cough one should examine the nasopharynx and throat for signs of irritation which may be relieved by a nasal lotion or a simple throat lozenge. If the night's rest is disturbed, five to ten drops of paregoric may be given occasionally for its relief. If special sedatives seem called for, a convenient mode of administration to children is the use of pastilles, which may contain one-fiftieth of a grain of morphine or codeine. In the convalescent stage the patient should have a sufficient amount of animal fat. A combination of cod liver oil and hypophosphites gives good results in restoring a healthy condition of the bronchial tubes.—*Med. Record*, March 1, 1913.

CHRONIC ULCER OF THE LEG

E. P. Regan, of Stillwater, Minn., in a recent symposium on Chronic Ulcers of the Leg in the "N. Y. Medical Journal," writes that the condition is but a symptom, due to a multiplicity of causes and should be treated as such. Realizing the importance of alcohol, syphilis, autotoxemia, and faulty hygiene, we accept these as predisposing factors. We also must consider the abnormal action of the various organs and glands, the kidneys, liver, and pancreas. The effect of uterine displacement, or engorgement, of enteroptosis, prolapsed kidney, etc., in the female are predisposing causes.

The exciting cause is usually traumatism. In general the treatment should begin with a careful inquiry as to the existence of any of these elements. Alcohol should be prohibited as far as possible, as its effect on the liver is to make for engorgement, at least primarily, with its tendency secondarily to venous stasis below. Syphilis must be combated by appropriate specific treatment; autointoxication by revised diet, elimination, and intestinal asepis. The daily use of sulphate of magnesia with lemon juice will in appropriate doses prove an admirable eliminant. The same remedy in the proportion of one ounce to the pint of hot water applied as a bath will aid the skin to renewed activity.

As this is essentially a trophic nerve disorder, the entire nervous system should be looked after. Appropriate tonics as strychnine, arsenic, quinine, etc., are called for. Hypernutrition should be met with by a restricted diet, and the poorly nourished fed to the limit of nutrition.

Locally, in the overfed plethoric individual, the ulcers are likely to present exuberant granulations with copious secretion of pus. In such instances, we curette the ulcer thoroughly under ten per cent. cocaine and irrigate with normal salt solution twice daily. When the granulations are reduced, the application of moist dressings of one to 500 potassium permanganate will usually produce marked action toward healing. Following this, the application of a powder of

Iodoform	1.00 parts;
Bismuth subgallate	10.00 parts;
Methylaminooxybenzoate....	4.00 parts;
Zinc oxide	15.00 parts;

will soon form a crust under which the newly formed skin begins to spread from the edge of the ulcer. The crust, if formed, should not be removed, but allowed to remain as a roof for the new skin.

Asthenic patients require also a stimulating application. Silver nitrate, five per cent., once daily is efficient. The powder as stated will usually benefit this type very quickly.

The Bier hyperemic treatment applies to this class, especially as a larger supply of blood locally is required for nutrition. The high frequency current is very useful in both types.

I have had very little trouble in healing these cases with the treatment outlined. Relapses are usually traced to new traumatism or to the impossibility of controlling the predisposing factors. These applications must be followed by the orthodox pressure dressing, *not* the rubber bandage, but the elastic wool or cotton roller, carefully applied. Beginning at the foot it must be carried to the knee in order to support enlarged veins. At times the blood pressure must be considered; results are certain.

The permanence of the improvement depends largely on the personal equation. Too often these cases prove to be the *bête noir* of the medical attendants.

FORMALDEHYDE DERMATITIS

W. E. Morgan, of Chicago, calls attention to dermatitis caused by formaldehyde, especially in that used in denatured alcohol, which he thinks is being rather carelessly used by physicians and surgeons. He gives his own experience and says he has found the same susceptibility amongst his professional associates. To those thus affected he thinks the following measures can be recommended: "1. Avoid formaldehyde as you would a pestilence. 2. Wash the hands or affected parts not more than once a day with luke-warm water and a vegetable-oil soap, such as Castile. Avoid green soap made with a fish oil or any animal-oil soap. At other times use olive oil or cotton-seed oil for cleansing purposes. He has found that a little phenol added to the oil (10 minims to the ounce) keeps it free from becoming rancid and adds to its soothing qualities. 3. Apply to the affected parts two or three times daily an ointment made up of zinc oxide 1 part, starch 2 parts, and petrolatum 8 parts. During the vesicular and acute stages this should be applied without friction, but after the epithelium becomes dry and the derma somewhat thickened and scaly the ointment can be rubbed in and the zinc reduced somewhat. 4. Avoid all powders except sterilized starch, and then during the vesicular stage only. 5. Rubber gloves cannot be worn for more than from

three to five minutes without producing marked irritation by reason of the confined perspiration. 6. Wear a cotton protecting sleeve or glove, or both, night and day until thoroughly healed. Silk or woollen goods cannot be allowed to touch or rub the affected parts without producing irritation."—*Jour. A. M. A.*, Feb. 22, 1913.

RECENT REPORTS ON CODEONAL

Von Oy reports the sedative and hypnotic effects observed in 90 patients treated with codeonal. The action of the drug took effect in from one-half to one hour and the sleep usually lasted for five or six hours. One to three tablets seldom failed in the insomnia of the aged, in neurasthenia or sleeplessness due to overwork or abuse of alcohol. Where dyspnea was a prominent symptom as in bronchitis, pleurisy and tuberculosis, where the cough was not excessive, good results were also seen. Cardiac cases with oppression and nocturnal dyspnea were benefited by one or two tablets. As a sedative, however, the drug appeared to be effective only in the milder cases.

Gastric distress or anorexia were not observed nor were the respiration or circulation affected or change in temperature noted. The patients did not seem to become accustomed to the drug. The author is of the opinion that codeonal is a harmless and pleasant hypnotic, especially indicated in the aged and debilitated.—*Med. Klinik*, 1912, No. 49.

THYROID MEDICATION

H. Stern, of New York, draws attention to the fact that the human thyroid gland contains about sixteen times as much arsenic as the sheep thyroid. In prescribing the drug he therefore regards it as an advantage to add arsenic in the form of sodium cacodylate. The action is also considerably enhanced by the presence of small amounts of epinephrin. His favorite formula is the following:

Ext. Thyroid	0.05 Gm.
Epinephrini	0.001 Gm.
Sodii Cacodylatis	0.0005 Gm.

He states that thyroid extract, as a rule is not prescribed often enough. Myxedema is a rare disease but there are many conditions depending upon insufficiency of the gland which are benefitted by this form of medication. Among these are alopecia and Rigg's disease or pyorrhea alveolaris. The latter condition is extensively treated by dentists by local measures but in the ma-

jority of cases, the improvement seen is very slight. In all cases of hypothyreosis it is necessary to use the medication for a long time but with the improvement, the dose can be diminished.—*Berl. klin. Woch.*, Nov., 25, 1912.

TREATMENT OF INTESTINAL DISEASES

C. A. Ewald reviews the various intestinal disinfectants and finds that even including calomel and mercury bichloride, not one of them has succeeded in diminishing the number of germs in the stool to an appreciable extent. Sterilizing all food has been recommended, but while it will prevent the addition of new germs, it will generally have little influence upon those already present. At present the most important consideration in the treatment of intestinal affections is the diet. The author also lays stress upon the necessity of a careful stool examination, and for this purpose begins with a very simple diet consisting of 75 to 100 Gm. zwieback, 100 to 150 Gm. cocoa, cooked with milk or water, and 300 Gm. rice, prepared with water, milk or broth. After two or three days the stool is examined microscopically and also for occult bleeding. Then meat and vegetable purees are added and the stool re-examined. In many cases, as where undigested connective tissue is found in the stool, the trouble is in the stomach and an achylia gastrica is present and requires treatment. Excessive intestinal fermentation can generally be easily diagnosed, for the stool has a more sour and less fecal odor and under the microscope many undigested starch granules will be seen. If desired, the fermentation test can be done to verify the findings. The symptomatic treatment of intestinal conditions is directed chiefly toward two conditions: constipation and diarrhea. Many new drugs have been recommended for constipation, but it is usually better to correct the condition by a diet which suits the pathological lesion and to resort to physical measures, such as massage, electricity and exercise. In very obstinate cases surgical interference may have to be considered. In every case of intestinal disease an exact diagnosis must be made, and besides the stool examination it may be necessary to resort to rectoromanoscopy and to X-ray examination after the ingestion of bismuth. Thus by means of the former method it may be possible to detect tumors of the colon which are not suspected and which are still so small that they can be radically removed.—*Berl. Klin. Woch.*, Jan. 6, 1913.

Prescriptions

Lymphangitis:

Tinct. Belladonnæ
 Tinct. Opiiāā f. 5j
 Plumbi Acetatis5ij
 Aquæf. 5viij
 M. Sig.: For external use.

Lentigo:

According to Hughes the following application is usually successful:

Hydrargyri Chloridi Corrosivi.....grn. iij
 Acid Hydrochlorici Dil.....f. 5j
 Alcoholisf. 5j
 Glycerinif. 5ss
 Aquæ Rosæad. f. 5iv
 M. Sig.: Apply at bed time, and remove with soap and water in the morning.

Tonic in Neurasthenia:

Acidi Phosphorici Dil.....f. 5ij
 Fl. Ext. Cocæf. 5vj
 Tinct. Nucis Vomice.....f. 5ij
 Syr. Zingiberisf. 5jss
 Aquæ Menth. Pip.....ad f. 5vj
 M. Sig.: Tablespoonful after meals, in water.

Tuberculous Laryngitis:

The following for inhalation has been found excellent:

Mentholisgrn. iij
 Creosoti (Beechwood)℥xvj
 Tinct. Benzoini Comp.....5ij
 M. Sig.: Two teaspoonfuls to a pint of hot water. Inhale at bedtime.

Stomatitis:

Tinct. Myrrhægtt. xx
 Potassii Chloratis5j
 Elix. Calisayæ5ij
 M. Sig.: Teaspoonful in water every four hours.

Nightmare:

The following mixture may be given every night at bedtime to a child of one year:

Ammonii Bromidi
 Sodii Bromidi
 Vini Antimoniiāā 5ss
 Syrupi Simplicis5j
 Aquæ Menthæ Pip.....ad 5ij
 M. Sig.: Teaspoonful at bedtime.

Writers' Cramp:

Treatment consists of rest to the part and mental quiet, with tonics and other means to improve the general nutrition. Faradism in weak applications once or twice weekly seems useful. The following combination may be of value (Hughes):

Zinci Phosphidigrn. ij
 Ext. Nucis Vomicegrn. x
 Ferri Albuminatægrn. xxx
 M. Div. in pil. No. xxx.
 Sig.: One pill after meals.

Local Application in Mumps:

Ragozzi recommends this preparation.
 Guaiacolisgrn. xv
 Petrolati
 Adipisāā 5jss
 M. Ft. ungt. Apply morning and evening and cover with a rubber bandage.

Tinea Versicolor:

Sulphur Precipitatæ5j
 Acidi Salicylicigrn. xx
 Adipis Benzoinati5j
 M. Sig.: Rub in twice a day.

Acute Follicular Tonsillitis:

Tinct. Aconiti℥x
 Elix. Curacao5ij
 Sol. Potassii Citratisad. 5ij
 M. Sig.: Tablespoonful every three or four hours.

Flatulence:

Magnesii Perhydrolis5ijss
 M. Div. in pulv. No. xx.
 Sig.: One or two powders three times a day.

Cephalalgia Luetica:

Atropinæ Methylbromidigrn. 3/4
 Saccharigrn. v
 M. F. pulv. Mitte tal. dos. No. x.
 Sig.: One to two powders as required.

Anorexia:

Strychninæ Sulphatisgrn. j
 Arsenii Trioxidigrn. ij
 Quininæ Sulphatisgrn. xl
 Ferri Sulphatisgrn. xl
 Ext. Taraxaci5ss
 M. et div. in pil. No. xl.
 Sig.: One pill after each meal.

Erythema Multiforme:

Quinine is recommended in idiopathic cases. Symptomatic eruptions must be treated according to individual indications. The salines are to be employed when constipation exists. Locally soothing lotions, such as the following, may be used:

Acidi Carbolici℥xxx
 Acidi Borici5j
 Glycerini5ij
 Aquæ5vj
 —Scott.

Acute Dysentery:

Cupri Sulphatisgrn. j
 Magnesii Sulphatis5ij
 Acidi Sulphurici Dil.....f. 5ij
 Aquæ Menthæ Pip.....ad. f. 5iv
 M. Sig.: Two teaspoonfuls every four hours.

Eczema:

The following may be dusted on morning and night in discharging eczema:

Tannoformi5j
 Zinci Oxidi5j
 Calaminæ5j
 Magnesii Carbonatis5v

Indigestion with Atony:

Strychninægrn. 1/4
 Pepsinæ Pulv.grn. x
 Amyli Pulv.grn. vij
 M. Sig.: Give at one dose.

—Scott.

Impotence:

The following has been recommended for debilitated subjects:

Phosphorigrn. 1/4
 Ferri Arsenitis
 Strychninæ Sulphatisāā grn. j
 Quininæ Hydrochloridigrn. xxiv
 M. Div. in pil. No. xxiv.

Sig.: One pill three times a day after meals.

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APRIL, 1913

EDITOR'S NOTES

The Injurious Principles in Coffee

The pharmacology of coffee is a very interesting study and even to-day, the opinions are still divided as to the active and the injurious principles. Very little is known of the composition of roasted coffee, since most investigations have been conducted upon the crude bean. The most important ingredient undoubtedly is caffeine, an alkaloid closely allied to uric acid. During the process of roasting, a certain percentage is lost by sublimation, but since water is also lost, the percentage in the finished product remains about the same. A second alkaloid, coffearine, is identical with trigonelline; it is not toxic and has not yet been found in the roasted product. Two acids, belonging to the tannic acid group seem to be present: chlorogenic acid and coffalic acid. It is not known if they are destroyed during roasting and they probably play only a very subordinate role. The oil of coffee contains the esters of six fatty acids. In the ash, large amounts of potassium and of phosphoric acid are found.

The principles which impart to roasted coffee its characteristic odor and taste have been but little investigated. The following substances, however, have been found in the distillate: acetic acid, methylamine, hydroquinone, pyrrol, acetone, ammonia, trimethylamine, formic acid, a body containing sulphur, pyridine, furfuric alcohol, valerianic acid, phenols. The real cause of the aroma is however not known.

Concerning the physiological action of coffee, the following statements are made by K. B. Lehmann (Muench. med. Woch., Feb. 11 and 18, 1913), who has carefully studied the pharmacology of coffee: Roasted coffee contains 1.12 to 3 per cent. caffeine. Three cups of a fairly strong brew will contain 0.45 to 1.2 Gm. caffeine. If these amounts of alkaloid are taken as such, there will be slowing of the pulse, slight irregularity and increase in tension, increased flow of urine, tremor and peculiar sensations in the knees, headache and insomnia. Large doses of extract of coffee act in the same way, and the general impression is that only a caffeine effect is obtained. The experiments were repeated with coffee prepared in the usual way, and in most cases there was a decided slowing of the pulse. Gastric symptoms were absent in 12 out of 15 cases; in the others there was some pyrosis. The respiration was increased about 10 per cent. There was a general feeling of warmth but only slight tremor or difficulty of concentration. Large amounts, corresponding to 908 milligrams of caffeine interfered considerably with sleep.

The effect of caffeine on psychical functions was that of initial stimulation, followed by depression. In almost all cases, a marked interference with sleep was apparent. In healthy individuals, small, long continued doses will stimulate the reflex centers of the muscles in the spinal cord so that the muscles will contract more energetically.

Some individuals are to a marked extent hypersensitive to the effects of coffee. Even doses of 0.5 to 1 Gm. caffeine will give rise to prolonged insomnia, vertigo, tremor and even signs of intoxication. In one case quoted, coffee freed from caffeine caused no symptoms while after 0.6 Gm. caffeine in untreated coffee there were pronounced palpitation of the heart, insomnia, increased frequency of the pulse, thirst, painful contractions of the stomach, intestines and bladder, and there was also dysuria. Despite a sleep lasting 19 hours the patient only felt normal again by the third day. In some individuals, even 0.1 to 0.15 Gm. caffeine will give rise to untoward symptoms, and sometimes this hypersensitiveness is developed only later.

Experiments conducted by the author with other ingredients of coffee were entirely negative. Thus, coffeon, the distillate obtained by passing the vapor of water through coffee beans, had absolutely no effect upon heart, brain, respiration, muscles or kidneys. Similarly, the results obtained with furfuric alcohol were negative, if amounts found in coffee were taken.

If coffee artificially freed from caffeine was employed, the extract of as large an amount as 100 Gm. did not in any way affect the respiration, pulse or sleep. In rare cases, there was irritation of the gastric mucous membrane with heart-burn, but no reflex slowing of the pulse.

An attempt has been made by some to render coffee less injurious by removing some of the fat and tannic acid by a mechanical process. This coffee is widely advertised as free from toxic action and superior to the caffeine-free product. The author, however, has shown in a most convincing manner that the only important and harmful ingredient in coffee is the alkaloid caffeine and that the volatile oils and fats have not the least undesirable physiological effect though mainly responsible for the characteristic aroma. Coffee freed from caffeine, its only injurious ingredient, will, therefore, enable those who are addicted to the drink to continue their habit without suffering the evil consequences of overstimulation. And there is sufficient proof at hand that coffee cannot be rendered relatively harmless in any other way. The average individual does not care for the alcohol in wine, the nicotine in tobacco or the caffeine in coffee, but uses these stimulants more for their more volatile ingredients. A safe and popular substitute can therefore be obtained only if the latter are preserved and the active and harmful active principles are removed.

Narcophin, A New Morphine Compound

Narcophin is the name given to the meconic acid salt of morphine and narcotine. For each molecule of the acid there are present one molecule of morphine and narcotine, and the amount of morphine present is 31.2 per cent. In order to increase the solubility of the preparation a slight excess of the acid has been added. Narcophin is a white, crystalline powder which dissolves slowly in cold water and more rapidly in hot. The resulting solution is clear and has a slightly bitter taste. According to Zehbe (*Munch. Med. Woch.*, 1912, No. 28), the preparation is weaker in action than morphine, but can often be employed to advantage in place of the alkaloid. The pharmacodynamic effect of the narcotine contained in the opium has been carefully studied by Walter Straub. It increases the narcotic and toxic action of the morphine, but spares the respiratory center more. It seems that the advantages of opium over morphine are to be explained by the presence in the former of narcotine. Narcophin would thus be a preparation more po-

tent than opium, yet possessed of the same advantages which this drug shows over morphine. Von Stalewski (*Therap. der Gegenwart*, Nov., 1912) states that narcophin possesses three advantages over morphine: it has a uniform composition, is more strongly narcotic and does not affect the respiratory centers. In one case of severe vascular neurosis the author found that the effect was not quite as prompt as with morphine, yet that Cheyne-Stokes respiration and cyanosis did not occur as with morphine. Sleep was very quiet and there were no disagreeable after-effects upon awakening. Narcophin is therefore indicated in all cases where the use of morphine is necessary for a long time. In cases of morphinism it is often possible to substitute this less dangerous drug. It also does good service in various painful conditions, such as colics, cardiospasm, labor pains, etc. The dose to be injected for adults is 0.03 Gm.

R. T. Jaschke has noted the favorable action of narcophin injections in obstetrics. After a dose of 0.03 Gm. an effect is generally seen in 10 minutes, and reaches its acme after two to three hours. An analgesic action is generally much more pronounced than a hypnotic one. The pulse and respiration of the patients were never influenced in any way, and the fetal heart sounds always remained satisfactory. The effect is always most marked during the first stage of labor; during the second stage there may be slight delay, which can easily be overcome by giving pituitary extract. No undesired after-effects, such as bleeding, could be attributed to the injection. The author decidedly prefers narcophin to morphine-scopolamine, but states that scopolamine may be added to the narcophin if desired.—*Muench. Med., Woch.*, Jan. 14, 1913.

The Absorption of Iron

The experimental proof has been furnished by F. Rabe that a very large percentage of the iron given per os is absorbed from the small intestines. The experiments were conducted on dogs with fistulae in various parts of the intestinal tract. If saccharated oxide of iron was given it was discovered that as much as 87.5 per cent, was absorbed by the small intestines. Considerable absorption goes on from the mucous membrane of the duodenum (in one experiment 59.5 per cent.) and probably also some from the stomach. If large amounts of iron are given in rapid succession the absorption is much less complete.—*Muench. Med., Woch.*, Dec. 17, 1912.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Narcolepsy.—Klhenberger relates a case of this mysterious affection, and describes the seizures to which the patient was subject under four heads. First, he slowed up suddenly in walking but did not stop; in a few minutes he quickened up to his usual speed. Second, his acts were suddenly arrested midway, the muscles not relaxing. This inhibition would last for a few seconds when the intended movement would be completed. Third, there was arrest as before, whereupon repeated efforts were made to execute the movement with no actual progress. Fourth, there was a much more complicated attack. A movement was arrested, as before; whereupon peculiar movements were made with the fingers, which were spread apart, or used in feeling and handling objects, as in delirious conditions. There was no change of color during the attack. There were no tics save for an occasional grimace and nictitation, but these were also present to a slight extent under ordinary conditions. In general the neurologic examination was negative. The patient, who was aged 20, could not have been an epileptic, as the attacks could not be confounded with *petit mal*. There was absolutely no clouding of consciousness, but simply an inhibition of motion. As to the psychogenous origin this was by no means evident. The patient was absolutely free from hysteria, having neither the stigmata nor the constitution. The condition is perhaps best explained by the theory of a special neurosis. Characteristic was the extreme periodicity, and patient also suffers from periodic headaches, migrainoid with scotomata. The narcoleptic attacks amount to as many as 100 attacks daily.—Berl. klin. Woch. per Med. Rec.

Malignant Growths in Workers in Synthetic Dyes.—S. G. Leuenberger, comparing the incidence of cancer of the bladder in workers in dyestuffs at Basel, Switzerland, since 1861, with that of the citizens in general, found the condition thirty times more frequent in the former than in the latter. The first symptom noted was usually vesical tenesmus, which came on at a stage when lesions were hardly visible microscopically. This would suggest irritation of the mucous membrane as the primary etiological factor. The growths later observed were either papillomas or solid cancerous neoplasms, rarely sarcomas, and were always of a high degree of malignancy. In most instances the condition developed only after many years had been spent in the factories, and sometimes it occurred when the individuals were no longer exposed—a point of resemblance to *x*-ray cancer. These two forms of malignancy, considered in conjunction with those of chimney sweepers and of workers in paraffin, tend to show that cancer may actually result from chemical or physical irritation, and that even if the truth of the parasitic theory of cancer should be demonstrated in the case of certain tumors, it cannot apply to all. Notwithstanding the stringent enforcement of prophylactic measures in the Basel factories, vesical cancer has not yet ceased to occur. Early diagnosis by cystoscopy, and operation in the initial stage, constitute the best means of control now available.—Semaine med. per N. Y. Med. Jour.

Teaching General Medicine.—The report of the Committee on Pedagogy read before the Association of Medical Colleges, Feb. 26, 1913, by E. P. Lyon, of St. Louis, is published in "The Journal A. M. A.," April 5. The article is founded on the replies of some thirty careful and enlightening responses to a request sent to about 150 deans and teachers of medical colleges. The aims of the teaching of general medicine are formulated from a study of these replies by Lyon under seven heads, in substance, as follows: 1. To give a broad and comprehensive presentation of the fundamental facts pertaining to the causes, effects, recognition, prevention and cure of disease and to correlate these facts with the fundamental sciences. 2. To demonstrate and develop the technical skill required in the treatment and study of disease. 3. To develop the powers of observation, judgment, precision, etc., necessary to recognize fully and apply the results of observation. 4. To develop the powers of expression, oral and otherwise, which can make these results available to others. 5. To instruct the student in medical literature and develop habits of study by which the graduate can continue to grow in knowledge and ability. 6. To give as much knowledge as possible of the human beings into whose life the physician must enter in a broader and more sympathetic relation. 7. To inculcate ethical and professional ideas which raise medicine above the level of a business or trade. To follow this inclusive program no distinction should be made at first between medicine and surgery. All diagnostic methods should be taught and surgery should branch off in its proper place with the other special branches of medicine. Technical skill is put parallel with theory, and the powers of observation and deduction are of equal or of still greater importance. As regards methods of teaching there is practically unanimity that laboratory work is essential throughout the course. Didactic lectures can be utilized, provided the students have the opportunity or the chance of acquiring the objective basis by which the matter of lectures or text-books is made intelligible. The fundamental sciences supply this in part, but another part must be supplied by early direct clinical observation. The broad foundation of theory and observation must also be laid, and the ability to observe and think should not be submerged by technical detail and skill. The clinical lecture, Lyon thinks, is useful to a moderate extent, but section and individual teaching has greater advantages and the students should be taught practically under supervision. The teaching should be organized on a university basis and the hospitals be opened to their use. Even scattered and inadequate hospital privileges may be fruitful if properly cultivated, and even before the full coöperation is obtained a useful working basis may be secured by tact and weight of opinion. The present defects in teaching medicine are pointed out and the need of paid teaching emphasized. Lastly, the importance of teaching ethical ideas is considered and the need of instructors teaching by example emphasized. In conclusion, he says: The weakest part of medical teaching is general medicine. It should be the strongest. It should be a university department like the other divisions of biologic science. It must be given its laboratory; that is, a hospital. It must be given its equipment. It must be given its material. It must be given its personnel; that is, paid scientists and teachers who devote their time to this work. It must have money. The problem of teaching general medicine is the great problem in medical education."

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WHEN MOTHER WAXES ELOQUENT.—“Hush!” said the mother softly, speaking to her visitors. “The children are going to deliver their ‘good night’ message. It always gives me a feeling of reverence to hear them—they are so much nearer the Creator than we are, and they speak the love that is in their little hearts never so fully as when the dark has come. Listen!”

There was a moment of tense silence. Then—“Mama,” came the message in a shrill whisper, “Willy found a bedbug!”

THE LASTING IMMUNITY CONFERRED BY PROPER VACCINATION is one of the best attested facts in medicine. When smallpox invades a community the disease is confined almost exclusively to the unvaccinated. The few cases of smallpox with a history of previous vaccination not infrequently show imperfect scars, indicating that they had never been properly protected. There is of course no question, that in a very small percentage the immunity does wear out in time, and there is also no question that every one should be vaccinated in adult life no matter how successfully vaccinated in infancy. Nevertheless if the child has been vaccinated at three or four points, it is exceedingly difficult to make it take again all the rest of its life. It is almost the rule for revaccinations to be unsuccessful, and there are no cases of smallpox on record in which there is a history of proper vaccination and revaccination which have been undoubtedly successful. There will probably therefore be some objections to the remarks of Dr. F. F. Russell in the Jour. Amer. Med. Assn., Oct. 12, 1912, in which he accepts some doubtful Japanese statistics as basis for his opinion, that the immunity conferred by vaccinia is very evanescent. Kitasato reported the results of revaccination in 951 cases, and asserted that after an interval of one year revaccination was successful in 13.6 per cent., and that the percentage of successes increased with the interval, until it was 63.8 per cent. after the sixth year. He estimated that immunity was practically gone ten years after vaccination. These figures cannot be accepted for a moment. The error is doubtless due to mistaking an inflammation from pus organisms as an evidence of successful vaccination. Not infrequently also a vaccination begins “to take,” but aborts, and these are generally mistaken for successes. The British Royal Commission stated that immunity generally lasts for nine or ten years, but it is justifiable to conclude that the evidence on which this opinion was based was also defective from the inclusion of spurious cases. Proper vaccination is far more effective than this, and we revaccinate entirely too often. In addition we generally make but one insertion whereas there should be three or four. We must

also make a distinction between immunity to vaccinia and immunity to smallpox. It is quite possible to be resistant to one disease and not to the other. A man may be able to resist a mild infection with small pox, but unable to resist the vaccine introduced into the skin. The contrary is also known of cases difficult to vaccinate, but not immune to smallpox. Kitasato's statistics therefore have little value in determining the exact amount of immunity conferred by vaccination.—American Medicine.

UNEXPECTED INJURY.—“Why, what on earth's the matter? How did you hurt your feet, Dinah?”

“Dat good fo' nothin' nigger (sniffle) done hit me on de haid wif a club while I was standin' on de hard stone pavement.”

FISHES IN MEDICINE.—The fish has in all ages been held in some manner sacred, as indeed have most other animals, at some period of history, with the exception of the hog. Many ancient religions included the fish in their mystic symbolism, and a medical significance seems to have been attached to it as early as in the days of Aesculapius. It also became a Christian symbol, partly on account of its association with one of the miracles, partly because of the curious acrostic by which its Greek equivalent, ἰχθύς forms the initials of the name and titles of the Saviour. Lecky, in his “European Morals” (I, 400), tells us that the word “contains also the initial letters of some prophetic lines ascribed to the Sybil of Erythra.” Even in our own day and community the sacred codfish is a familiar symbol, though associated less with sanctity than with the maritime past of Massachusetts Bay Colony.

In medicine the fish has given its Greek name to ichthyosis, that uncanny scaling affection of the skin, which the Germans know by the delightful term of Fischschuppenauschlag. But in materia medica terms of piscine derivation are much more often to be met than in pathology.

First of all, there is ichthyol, a transparent yellow-brown oil, of sea-green fluorescence, the ammonia salt of a sulphonic acid, prepared by distillation from a bituminous shale found in the Cambrian strata of the Tyrol and containing the remains of many fossil fishes. This valuable drug was first introduced into dermatologic practice by Unna in 1882, and has since been adopted as well by gynecologists.

Next there is ichthyocola, or fish glue, the isinglass of commerce, a gelatinous substance prepared from the dried swimming bladders of *Acipenser huso* and several other species of sturgeon. By pharmacists it is dissolved in a mixture of water, alcohol and glycerine, and when painted on taffeta constitutes court plaster, an agent once much more commonly employed by surgeons than nowadays.

Of Latin derivation is pisidia, the Jamaica dogwood, whose leaves, twigs and bark are used by the natives to poison or stupefy fish, and thereby facilitate their capture. The root bark has been employed therapeutically in the form of a fluid extract, as a narcotic, diaphoretic and laxative, being recommended especially in neuralgia, insomnia and whooping cough. The tincture has been used for odontalgia. Its active principle is piscidin, whose pharmacologic action is to paralyze the sensory ganglia of the spinal nerves, excite the motor centers in the cord, and depress the heart.

Last, and by far most important, is the honest English derivative, cod-liver oil, a familiar and valuable domestic remedy, used by the fisherfolk of the North Sea long before its introduction into medicine early in the nineteenth century. It is a pale, thin, yellow, fixed oil, with a unique flavor, extracted from the fresh livers of *Gadus morrhua* and several other species of cod. It contains traces of iodine, bromine, phosphorus and cholesterol; but its undoubted therapeutic efficacy is probably due not to these but to its character as an easily assimilable animal fat.

It is not in the departments of pathology and materia medica alone, however, that the fish is of interest to physicians. As an article of diet, fish is a valuable, though unfortunately much neglected, substitute for meat, and should be more extensively employed to this end at other than Lenten seasons. It has been alleged that a fish diet predisposes to leprosy, but bacteriology and hygiene seem satisfactorily to have refuted this fallacy.

Morphologically, too, the fish is of medical interest, for it represents a completed evolutionary type, most perfectly adapted to the conditions of submerged animal life in normal saline. Geologically the fish first appeared in paleozoic time, immediately demonstrated its fitness for survival, persisted till the course of progress led upward through amphibians and reptiles to air and the dry land, and remains still the primate of pelagic creatures. The whale, a poor sidetracked mammal, is but a sorry mass of cumbersomeness beside his lithe, elegant cousins, who poise and dart as exquisitely in the water as a bird in the ocean of atmosphere. Embryologically, too, the fish bears testimony of kinship to us—for the branchial clefts with which every human being is prenatally provided, and which sometimes persist as inconvenient malformations of the neck, are but repetitions of the gills which we have discarded for lungs, one of Nature's many reminders that each of us repeats in more or less synopated form the biologic evolutionary experience, not of the race alone, but of all animate existence.

There are few pastimes more pleasurable or profitable to a physician than the cultivation and study of fishes. Whether in a tank indoors or in a pond afield, one can to much advantage observe their form, movements and habits of feeding. This is instructive, and good training as well.

For what average man, or physician for that matter, previously unschooled, can tell offhand, how many fins a fish has, or how they are disposed and used. One may well keep fishes a six-month before noticing that when they swim they spread the segments of their forked tail as a human swimmer does his legs; or that their eyes not only have no lids, but are even devoid of the nictitating membrane with which birds are provided. Such observations, when first made, bring home the cogency of Agassiz' oft reiterated injunction, "Look at your fish."

For indoor study the goldfish is almost the only available genus, but outdoors one may find many others, especially if a follower of Sir Izaak. A good aquarium, too, such as that opened last fall in South Boston, is a great advantage, for here one may see fish from a new standpoint. In their tanks, behind heavy plate-glass, one looks at them from below, as it were from their own medium, watching their exquisite, delicate, yet vigorous movements and marvelling at the ease of the mechanism by which they rise or sink, apparently without effort, to any desired level. Blessed of all animals, too, the fish, though keen of hearing, is silent. This, and their innocence, seem especially to have impressed John Donne, the poet who has given us perhaps the best descriptive phrase in literature about the fish. Viewed from the vantage point of the air, the fish is indeed a wonderful and mysterious creature. But only when one thus half enters the fish's world, and regards him from the imaginative standpoint of a common denizen of the same medium, does one appreciate fully the felicity in Donne's description of

"The deep
Where harmless fish monastic silence
keep."

—Boston Med. & Surg. Jour.

EUGENICS AND EUTHENICS.—There appears to exist at the present time a marked tendency on the part of the advocates of eugenics and euthenics severally to magnify the influence of their especial pet theory. Those who hold that heredity is the base of most human ills claim that environment counts for little, while per contra the supporters of euthenics insist that environment is at the root of all the trouble. It is difficult, indeed for the present impossible, to hold the scales evenly and to adjudge to each

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factor the amount of influence it exerts. Much ink is being spilled in this endeavor, but we appear to be as far away as ever from arriving at a just conclusion. When the greatest authorities on the matter express entirely divergent views, what are the humble rank and file to think?

In the "Popular Science Monthly" for November, 1912, Professor Leon I. Cole takes the ground that acquired characteristics are in no specific sense inherited, and argues, therefore, that the proper place of environment in a eugenic program is not a simple question. In the first place, it is very difficult to separate these characters which are the results of inborn determinants from those which are produced solely by reaction to environment. Or it may be, as is probably usually the case, that both influences are at work in the expression of the same character. Cole expresses decided views as to the menace of immigration, stating that the scum of Europe is imported to supply the cheap labor by which the rich man may amass his millions. As to the decreasing birth rate of civilized countries, the writer says again what many authorities have been endeavoring to impress on the minds of statesmen, philanthropists and social workers for years—that the dangers arising from this fact do not consist so much in the falling birth rate itself as in the fact that because of it the worst and not the best types are being reproduced.

There is really no cause for a conflict between eugenics and euthenics. Neither can accomplish the results that its enthusiastic followers claim, but that is no reason why each system should not effect much. The two methods should work together in harmony and there is no doubt that intelligent co-operation will tend to produce a better race, mentally and physically. The eugenicists, however, while laying much stress on the successful breeding of animals and plants, apparently forget that human beings are neither animals nor plants. If the sole aim were physical excellence, then careful breeding would to some extent answer the purpose. But human beings are different from animals and plants, in so much as brain power is of equal if not of greater importance than physical perfection or even good health.

As a matter of fact, supreme powers of the body seldom accompany the agile brain, and perhaps more frequently than not a high order of brain is lodged in a creaky tenement of clay. There is much to be said for eugenics and euthen-

ics, but the eugenists are somewhat too apt to be dim of sight with regard to the merits of any method other than their own.—Med. Record.

WELL MATCHED.—A traveller in the West came across two men having a heated argument. The traveller drew nearer and heard:

"What do you know about the Lord's Prayer? I'll bet you ten dollars you can't repeat the first line."

"I'll take the bet," said the other man, and, turning to the stranger, asked him to hold the money.

"Now, what is the first line?" asked the first one.

"Now I lay me down to sleep."

"You win," said the first man. "I didn't think you knew it."—Lippincott's.

EATING AND "FEEDING."—No doubt there are a number of people in this world who know how to "feed," but how many know how to dine? Indeed, it would be difficult to answer this question, since the majority of us do not draw the fine—or is it the coarse?—distinction between the two. And when it is a question of the amenities that should go with civilized masticatory performances, how many of us even know when or how to apply the word? Now, in "Dining and the Amenities," a recent book by a Lover of Good Cheer, the reader will find a very good definition of the amenities pertaining to dining and also other valuable matter that will attract his attention perhaps long enough to make him aware that somehow he has failed to derive all the pleasures that inhere in eating as distinguished from "feeding." Just why in our own country there has been a horror of being put down by one's friends as one who likes the good things of the table—likes them as a cultured man should—is one of those unsolved problems that baffle the ordinary intelligence. But let us hope that we are improving a bit; that before long such books as the one under consideration will be instrumental in bringing the attention of many Americans to the subject of the equal importance of dining intelligently with "How I Made My Millions," "Why I Am a Prominent Citizen," "How to Live Comfortably on One Dollar a Week," and other allied subjects which appear to have enslaved our minds to-day. Surely the American stomach has been shabbily treated in the past, has been the receptacle for foods that have been put together by the rawest mechanics, has been dosed, in case

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of rebellion, with medicines the trail of which would possibly encircle many of our States, been mauled and battered, medically speaking, as no other stomach since the dawn of civilization. But, as we said before, the times are ripe for books to enlighten us as to our past and present sins; and if we would but remember what Brillat-Savarin said in the first quarter of the nineteenth century, and which runs thus, "*Les animaux se repaissent; l'homme mange; l'homme d'esprit seul sait manger*," a text of inexhaustible value would never be lacking to point a moral to the apparently never-ending tale of our national indigestion.—Interstate Med. Jour.

THE PRESCRIBER, always one of our most interesting exchanges, appears this month as a double number and is devoted exclusively to hormone therapy. Instructive original articles are contributed by Doctors Harrower, Waller, Crofton, Starkey, Bayle and Allan, and these are supplemented by abstracts from current medical literature on the following topics. Adrenals, thyroids and parathyroids, pituitary gland, pancreas, spleen, reproductive organs, thymus, pineal gland and the prostate. There is also a very comprehensive bibliographic summary and a list of organotherapeutic preparations, with the names of the manufacturers. The editor, Dr. Stephenson, is to be congratulated on the excellency of this issue. The Prescriber is published at 137 George St., Edinburgh, Scotland, and the price of this issue is one shilling; postage 2d. extra.

ONLY IN BOSTON.—A Boston physician relates that his active 9-year-old boy was kept after school and the teacher had a serious talk with him. Finally, she said: "I certainly shall have to ask your father to come and see me."

"Don't you do it," said the boy.

The teacher thought she had made an impression. "Yes," she repeated, "I must send for your father."

"You better not," said the boy.

"Why not?" inquired the teacher.

"Cause he charges \$4 a visit."

PROGERIA AND ATELEIOSIS.—Both of these terms have been introduced into medical nomenclature by Hastings Gilford. Progeria, which means premature old age, has been used to designate those extremely rare cases of infantilism in which, in addition to the arrest or decay in the growth of the body, there also develops a condition of premature senility. From a childhood that has been delayed in development the individual passes into a premature old age. Ateleiosis is the name given to an important variety of infantilism for which no apparent antecedent or coexisting cause can be assigned. It is a retardation rather than an arrest of development. It may begin at any period of the life of the individual, it may affect different parts of the body to a different degree, and its rate may vary in different cases.

Prof. Arthur Keith of the Royal College of Surgeons of England reports in the "Lancet," February 1, 1913, the results of a study that he has made of the skeleton of a case of progeria, which skeleton has recently been added to the museum of the college. He describes in detail the peculiar combination of infantile and senile changes manifested in the skeleton. He also points out the striking contrast between this condition and acromegaly. Those parts of the skeleton which are overgrown in acromegaly are undergrown in progeria. Progeria is not a generalized dwarfism, nor is acromegaly a generalized

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overgrowth of the bones of the body. Both conditions are selective in action and affect the same tissues and parts of the body. It is noted that Gilford regards progeria and acromegaly as contrasted forms of senilism. In progeria the tissues pass prematurely into the condition seen in aged men and women; in acromegaly the tissues undergo an atavistic change and assume characters belonging to a remote phase in the evolution of the human body; in other words, acromegaly is a condition of ancestral senilism.

Keith, without committing himself as to the validity of this hypothesis, nevertheless perceives an important contrast between acromegaly and progeria as regards the light they throw upon the physiology of the internal secretions. It is suggested that if the changes in acromegaly are produced by a stimulus or hormone proceeding from the hypophysis cerebri, then the condition in progeria can be best explained by an absence or marked diminution of that stimulus.—Med. Record.

THE PORPHYRINS IN PATHOLOGY.—The chemist Nencki, some time before his death, succeeded in preparing from hematin, the ferruginous fragment of the blood pigment, two crystalline compounds which were designated as "hematoporphyrin" and "mesoporphyrin," respectively, and showed a close similarity by the spectroscopic test, the method of examination so commonly applied to hemoglobin derivatives. Subsequent investigation has demonstrated, however, that the two porphyrins, alike though they may be in their optical behavior, are chemically distinct com-

pounds. Hematoporphyrin owes its origin to a process involving oxidation; mesoporphyrin requires reduction reactions for its production; and perhaps the possibility of still other iron-free hematin derivatives is not even here exhausted.

Under a variety of pathologic conditions there is found in the urine in noteworthy amounts a substance which is ordinarily spoken of as hematoporphyrin. Hematoporphyrinuria is familiar as a symptom of poisoning with sulphonal and trional, for example. Inasmuch as the conventional way of identifying this pathologic urine pigment is by means of spectroscopic examination, and the isolation of the so-called urinary hematoporphyrin in any reasonable degree of chemical purity has not yet been satisfactorily accomplished, it appears difficult to decide (in view of their spectroscopic similarity) as to which one of the now known distinct porphyrins actually constitutes that substance with which the clinician is familiar.

The final answer to the problem can perhaps not be given until the urinary porphyrin is actually isolated as such. Certain recently discovered biologic properties of the porphyrins may, however, throw light on the question. Tappeiner and his pupils in Munich have shown that by means of so-called photodynamic substances, among which fluorescein may be cited in illustration, it is possible to sensitize organisms to the harmful action of light.

Hausmann has extended this work to show that chlorophyll and the related substance hematoporphyrin prepared from the blood pigment may exert a similar photodynamic influence. Red

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blood corpuscles, for example, are hemolyzed by hematoporphyrin only in the light. White mice, injected with small quantities of the same porphyrin, remain normal for weeks when kept in the dark. Exposed to the light, however, they quickly develop characteristic symptoms of intoxication accompanied by a dread of the light, dyspnea, inflammation and swelling of the ears and edema of the skin, resulting in speedy death.

In Friedrich Müller's clinic at Munich, Fischer and Meyer-Betz have investigated the photosensitizing properties of the two porphyrins prepared in a high state of purity. They were able to verify Hausmann's observations on the photodynamic properties of hematoporphyrin in equally striking experiments. The contrast between injected animals in the dark and in the sunlight belongs among the spectacular and almost mysterious phenomena which the biologic sciences furnish so frequently. Pure mesoporphyrin, on the other hand, is apparently devoid of all photosensitizing influence, though it appears to exert a slight toxic action. Porphyrin prepared from the blood derivative hemin by reduction and subsequent oxidation—a process quite within the possibilities conceivable for the animal organism—behaved like the hematoporphyrin.

The existence of specific compounds which are known to arise in the organism under certain pathologic conditions, and which can exert such a marked sensitizing power toward light, has more than a passing medical interest. A skin affection sometimes designated as "hydraea aestiva" and connected with the strong action of sunlight often shows an association of the exanthem with the appearance of hematoporphyrin in the urine. Rabbits in which hematoporphyrinuria has been developed by sulphonal respond with skin affections to intense illumination. Other cases attended with porphyrin in the urine, for instance, syphilis of the liver, have been reported to develop necroses in the portions of the body exposed to light. Numerous other illustrations of real or alleged hypersensitiveness to light, as they have been reported in the curious response of certain individuals to buckwheat ingestion and in pellagrins, might be cited here; but the discussion of this interesting and little-exploited domain would lead us too far afield.—*Jour. A. M. A.*

BAD NEWS.—First M. D. (from bedside of wealthy bachelor).—He is sleeping naturally—he will recover.


Second M. D.—Yes, the worst is over.

"No, the worst is to come."

"How is that?"

"We have yet to break the news to his relatives."

SEX INSTRUCTION IN SCHOOL.—P. Zenner of Cincinnati gives an account of the later results of a course of instruction in sex hygiene given some five years ago in one of the Cincinnati schools. The school was in a slum district where the children were exposed to demoralizing influences and the moral tone was low. The immediate results were to make the scholars more cleanly and decent, and the influence also extended to the homes. Many parents came to the school to thank the teachers for what had been done. Four and a half years later, when the members of the class had become young men and women, Zenner requested the teachers to look up their records and present condition. Between one-third and one-half of them could be traced, and the good results were found to have been lasting. With

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one exception the girls have all been found to have led pure lives and kept their minds pure. While, as was to be expected considering their history and environment, the report is not so favorable with the boys, the number of them with good habits and clean lives is unusual and a much better showing than the average of young men. Zenner thinks that the record shows what can be done and is an argument for general adoption of such methods of instruction. He admits that home instruction in such matters is ideal, but it cannot replace that in the school, and the notion of delaying such knowledge in children is futile. If they cannot have proper instruction from proper sources they will have it from evil sources and of a perverted kind. School instruction itself, if improperly done, may do harm, and the method he suggests to meet all possible objections is as follows: It applies to class instruction. "The lesson in each instance should be a prepared one. The teacher, whether school teacher, physician or any other, should recite it to the assembled parents, with possibly the superintendent, a physician or other supposed expert in the audience. Only if it be satisfactory to this gathering should the lesson be given to the class. Such a procedure would have various advantages. It would be a reasonable assurance that the teaching would do no harm. It would remove the antagonism of the parents to such instruction, which is now its chief stumbling block. The teacher might receive suggestions from the audience which would help him to make the lesson more valuable. Finally, the lesson might be a great source of instruction to the parents, often enabling them to teach their children rightly at home." Zenner says the public discussion of sexual matters is not without its possibilities of harm, but the greater danger of silence justifies it. If we can by instruction of the young lessen the great menace of social disease as well as help to create higher ideals there will then be no more need of so constantly bringing these matters before the public.—*Jour. A. M. A.*

AN INJECTION OF BISMUTH PASTE may definitely close a troublesome empema sinus.—*Amer. Jour. Surg.*

OXYGEN INTOXICATION.—It was recently asked if the authorities in charge of the Olympian Games this year to be held in Stockholm would permit the competitors to carry oxygen bags to take whiffs from while they run. It was contended—and this by so eminent a scientist as Sir Edwin Ray Lankester—that "as oxygen gas is not a drug, but as natural an article of consumption as water, there seems to be no reason why the runner should be disqualified from refreshing himself with it, as he may with water or soup." Oxygen gas is a drug in the sense that it has therapeutic value in affections of impaired respiration, such as comas and labor pneumonia. Otherwise pure oxygen is as deleterious as any stimulant, for the stimulation is followed by depression. Frequent intoxication by this means must inevitably exhaust the vitality and shorten life. Nor is it true that "pure oxygen is as natural an article of consumption as water." Oxygen is safe for those in health only in its mixture as atmospheric air, with several parts of nitrogen. This is the only suitable form of oxygen inhalation for normal individuals—the form to which human and all other life has during the ages become adapted. Meddling with Nature is bound to be disastrous in the long run. Athletes have before this been given "jags" of undiluted oxygen, to stimulate them to outdistance their opponents. But such oxygen-made records will not for a moment stand in the estimation of a true sportsman, because they are not made under the conditions with which human life must ordinarily cope. Besides, such "sport" must inevitably invite collapse, ruined myocardia and premature death.—*Jour. A. M. A.*

THE COMMON PRACTICE of massaging after an intramuscular injection is to be condemned. It serves no purpose, but to the contrary may rupture a neighboring vessel and cause a hemorrhage with subsequent abscess formation.—*Urologic Review.*

THE USES OF DIGITALIS AND STROPHANTHUS.—Among the heart tonics Eichhorst mentions a considerable number as demonstrably of value, as shown by animal experiments, but concludes that clinical experience indicates that only two are reliable, the preparations of strophanthus and those of digitalis. While in the opinion of the author strophanthus deserves the first place, according to

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salicylic acid and antipyrine have their essential characters, though modified by close chemical union and in a very great degree deprived of the dangers of mechanical mixtures. Where no idiosyncrasy exists, SALIPYRIN does not cause any disagreeable effects on circulation or digestion. You will find in SALIPYRIN a most reliable remedy for Influenza, Catarrhs of the nose and throat, and Rheumatism.

experimental researches, their relations must be reversed in practice. Digitalis is the medicament of first choice. Of the preparations of digitalis, Eichhorst gives the preference to the powdered leaf and to the Digalen of Cloetta. "Practical Medicine Series." General Medicine, Vol. 1. F. Billings and Salsbury, page 208. (Hoffman La Roche Chem. Works.)

IF ONE WISHES TO START a luetic patient on intramuscular injections, it is well to give the first injection in the form of a soluble salt which is quickly absorbed and eliminated, a point of importance should an idiosyncrasy to mercury exist.—Urologic Review.

DOSAGE OF STYPTOL.—During the last five years, G. Foy, of Dublin, has had occasion to prescribe styptol in the various forms of uterine hemorrhage, and he reports that excellent results were obtained with very large doses. He prescribed doses of 10 grains, while the usual dose is only $1\frac{1}{2}$ to $2\frac{1}{4}$ grains. In one case, 10 grains were given every two hours, until 12 were taken, without the least unpleasant result. His rule is to prescribe the drug in intervals of two, three, or four hours, according to the severity of the case. Dr. Foy finds styptol, as a styptic, superior to any therapeutic agent and shows that it may be prescribed in much larger doses than those usually recommended.—Med. Press, Nov., 1912.

CLINICAL LECTURES AND DEMONSTRATIONS.—The governors of the New York Skin and Cancer Hospital announces a series of clinical lectures and demonstrations in the out-patient hall on the hospital on Wednesday afternoon at 4.15 o'clock. Dr. Bulkley will lecture on surgical diseases of the skin on April 16, 23, 30 and on May 7. Dr. Bainbridge will lecture on the surgical treatment of malignant diseases on May 14. Each lecture will be illustrated by cases, models, colored plates, photographs, etc. The lectures will be free to members of the medical profession upon presentation of professional cards.

LIPOID METABOLISM IN DEVELOPING CHICK.—F. M. Hanes states that the liver of the embryo chick during the first two weeks of development contains an abundance of isotropic fatty globules which represent a mixture of lipoids in which phosphorized fats predominate. During the third

week of incubation the fatty globules in the liver change their physical and chemical characters. They become anisotropic and exhibit the reactions and properties of esters of cholesterol. The phosphorized fats gradually disappear from the liver during the third week. The phosphoric acid utilized by the embryo chick in calcification is derived from phosphorized fats. It is suggested that the phosphorized fats are split in the liver, the glycerophosphoric acid portion being liberated for calcification, while the free fatty acids are esterified by cholesterol. A review of chemical analyses of aortic atherosclerosis and calcification, and a comparison of the conditions in atherosclerosis with those of the developing chick liver, suggest that pathological calcification results from a splitting *in situ* of phosphorized fats with the subsequent formation of calcium salts, as suggested by Baldauf.—Jour. Exper. Med.

A SUCCESSFUL MODE of treating the trigonal cystitis of females is to introduce a swab well soaked in a one or two per cent. solution of silver, through a tube. The bladder should be completely emptied before making the application.—Urologic Review.

SURGERY, GYNECOLOGY AND OBSTETRICS.—With the February number of our progressive contemporary "Surgery, Gynecology and Obstetrics" is issued the first number of the International Abstracts of Surgery. This addition doubles the size of the journal and quadruples its value and interest. It is the first serious attempt to publish in English a complete, comprehensive and authoritative review and index of the surgical literature of the world. The editors have entered into an agreement with the publishers of three important abstract journals of France and Germany, whereby there is to be an exchange of material. The publishers are to be congratulated upon their enterprise.

THE ELIMINATION OF OPIUM'S UNTOWARD PHENOMENA.—Were it not for its several disagreeable features which are sufficiently weighty to make one hesitate before employing it, opium, of course, would be the ideal analgesic. Unfortunately, however, along with its analgesic effects, opium exerts those well known phenomena which

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tend to limit its usefulness as a pain-relieving agent. But with the discovery of processes by which it is possible to eliminate the convulsive and narcotic principles of the drug, PAPINE (Battle) became possible, and with a wider therapeutic application than opium. In the manufacture of PAPINE, the several objectionable qualities of opium have been eliminated, the finished product representing the analgesic and sedative properties only of this valuable drug. In view of this, the superiority of PAPINE over opium and its alkaloids cannot be denied, for although offering to the patient the positive analgesic properties of opium it does not at the same time bind up his bowels or subject him to its other disagreeable effects. The utmost care is taken in the manufacture of PAPINE and it is fully believed that it offers every possible advantage over opium.—(Battle & Co., St. Louis, Mo.)

LIPOMYXOMA.—H. C. Little of Changsha, China, reports a spectacular case of lipomyxoma. This growth began as a slight nodule on the left lower jaw of a Chinese monk. When the patient entered the Yale Mission Hospital at Changsha, the tumor was so heavy that it had to be carried in the patient's arm when he walked and held in his lap when he sat down. After operation the tumor was found to weigh 30 pounds; its longest diameter was 15½ inches.—*Jour. A. M. A.*

SYDENHAM HOSPITAL.—A testimonial benefit was recently tendered to the Sydenham Hospital, New York, by Messrs. Lee and J. J. Shubert as a memorial to their brother, the late Sam S. Shubert. It was held at the Lyric Theatre, at which more than one hundred and fifty volunteered their services for the performance. It is stated that more than \$9,000 was realized.

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IN NEPHRECTOMY for tuberculosis, after cutting through the ureter with a cautery, apply a clamp as near the bladder as possible and inject carbolic acid through a catheter introduced into the ureter, permitting the excess to escape.—*Urologic Review.*

INTERNAL THERAPY OF SYPHILIS.—A preparation which complies with the following requisites will be most useful in the internal treatment of syphilis:

1. It must contain large quantities of mercury, sufficient for a thoroughly efficacious course of treatment.
2. It must not possess any irritant properties, and therefore not produce any lesion of the intestines, as evidenced by colic and diarrhea.
3. It must be divisible into exact doses, so that we may know how much mercury is introduced into the body in a given time.
4. The absorption of mercury must be steady, and not fluctuating.

Experiments and, what is most important, clinical observations by independent authorities on the subject have given abundant proof that Mergal possesses in every way these qualifications which entitle it to the claims of a superior preparation. Medical literature of recent years which has been produced on Mergal gives sufficient testimony to its much-praised qualities.

Logical Sequence: Mergal may be recommended for all those cases which are suitable for internal medication or which are subject to arsenical treatment, but require a mercurial adjunct.—(J. D. Riedel & Co., New York.)

THE FRENCH HOSPITAL, 450 West 34th street, New York, recently opened its Home for the Aged and Training School for Nurses at 445-447 West 33d street, adjoining the hospital. The hospital is operated under the auspices of the French Benevolent Society of New York, which since its inception has been noted for its rapid growth and the extent of its activities. The society was organized in 1809, its aim then being only to extend relief to the poor and to visit the sick. From 1835 until the extension of the municipal school system the society had its own school for children. In 1874 an immigration bureau was opened and in 1881 the French hospital was opened. In 1904, after successive extensions in many quarters, the present modern hospital, accommodating 125 patients, was built. The society then sought further to extend the sphere of its work by providing a home for the aged. The first step towards the realization of its aim was a donation of \$20,000. This gift was utilized in securing the necessary ground. It was also decided to include a Home for Nurses in planning the new building. Ground was broken on December 1, 1912, and on March 1, 1913, the new building was opened. It is a six-story and basement building. The wards for the aged occupy the fourth and fifth floors and accommodate fifteen of each sex. On the top floor there is a large dining room and a double solarium. Quarters for the nurses are on the second and third floors.

This new building has made possible such improvements in the hospital as the enlargement of the laboratory for scientific research, a new x-ray department and a larger dispensary.

To all known and unknown donors who have through their generous help made this enterprise successful the society extends its sincere thanks and gratitude.

AN ATTEMPT TO ABORT GONORRHEA should only be made at the very outset of the process, and by a man fully appreciative of the possible dangers. The best means is a two or three per cent. solution of silver applied through an endoscope.—*Urologic Review.*

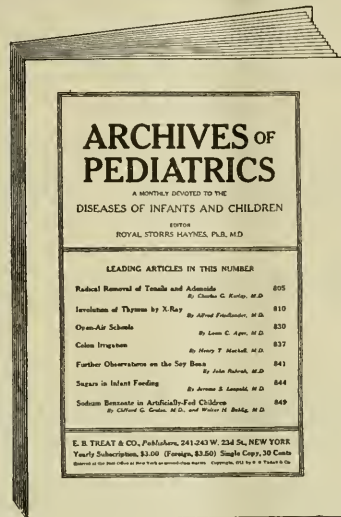
PSYCHOTHERAPY.—H. A. Knox of Ellis Island, N. Y., speaks of the influence of the old family doctor and the advantages of psychotherapy. His first illustration is that of a cancer patient who has passed to a hopeless stage and for whom no benefit resulted from treatment. Her physician concluded to use suggestion. He told her that the diagnosis of cancer was a mistake and that with proper treatment she would recover. The result was marvelous. Analgesics were continued, but other treatment was stopped. The patient began to eat again and in two days was riding out with the nurse. This state of affairs continued for three weeks and then she suddenly

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collapsed and died. He asks if giving this temporary respite was justified, a question each must answer for himself. Psychoanalysis, which seeks to look backward into the patient's life for some possible cause for the abnormality, has also its place in some cases. Each physician must study his case and diagnose it accurately, otherwise he will sooner or later discard a useful method as useless or even dangerous. In functional neurasthenia a world of good can be done by one in whom the patient has confidence, by his utilizing his power of suggestion at the proper time and in the proper way. Knox gives an account of a paranoiac with fixed delusions who, by judicious management, has been kept a useful citizen with a happy family. When opportunity offers, the author intends to carry out experiments on neurotic and insane patients with the *Bacillus bulgaricus*. He has tried it somewhat with apparently good results, but his experience is not yet sufficiently extensive. He has found suggestion very useful in the treatment of the phobias, and he speaks especially of its good effects in allaying the fear of death from which so many persons suffer. A physician, he says, should not allow science to bear him away from his Maker and should recognize that in encouraging the hope of life hereafter he has a powerful weapon with which to aid his patients.—Jour. A. M. A.

SCHOOL HYGIENE.—Secretary Dr. Thomas A. Storey, announces the Fourth International Congress on School Hygiene, which is to be held in Buffalo, August 25—30, inclusive, under the patronage of the Honorable Woodrow Wilson.

It is the desire of the Congress to bring together a record number of men and women in-

terested in improving the health and efficiency of school children, moreover to make this Congress—the first of its kind ever held in America—one of direct benefit to each individual community.

There is now being arranged a comprehensive program of papers and discussions covering the entire field of school hygiene. There will be scientific exhibits, representing the best that is being done in school hygiene, as well as commercial exhibits of practical and educational value to school people. Nor will the entertainment of the delegates in any way be a minor feature. Plans are being made for a series of social events, including receptions and a grand ball, a pageant in the park, and excursion trips to the great industrial plants of Buffalo, as well as to the wonders of Niagara Falls, and the Rapids. Buffalo itself has just taken up a collection of \$40,000 for the purpose of covering the expense of the Congress.

Delegates will attend from all the leading nations, from every college and university of note in this country, and from various other educational, scientific, medical and hygienic institutions and organizations. The Congress is further open to all persons interested in school hygiene. Membership may be secured on the payment of a Five Dollar fee. Applications should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

IN CHRONIC POSTERIOR URETHRAL DISORDERS investigate the region of the prostatic urethra and internal sphincter to determine if polyps or papillomata are present. If so, only their removal will secure full relief.—Urologic Review.

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DIAGNOSIS AND MANAGEMENT OF SUNSTROKE AND HEAT PROSTRATION

By Israel Bram, M.D., of Philadelphia, Pa.

SUNSTROKE (insolation) and heat prostration, though both be due to the results of exposure to excessive heat, are different in character. Each presents a distinct clinical picture differing from the other, and each must of necessity be treated as a distinct disease. It is a dangerous practice to employ the terms "sunstroke" and "heat prostration" interchangeably, as this implies similarity in treatment—a procedure which may prove disastrous to the patient. My purpose in presenting this short paper on this interesting topic is to emphasize the differential factors in the etiology, diagnosis and treatment of the results of the torridity and sultriness of the atmosphere during the summer months, particularly in the large, busy cities, where these patients may be counted by the hundreds.

Etiology.—The causes common to both sunstroke and heat prostration are excessive heat, moisture and stillness of the air, improper quality and quantity of clothing, unhygienic habits, alcoholism, physical and mental fatigue, privation, worry, emotional excitement, overeating and the presence of a lowered constitutional resistance. One attack of either sunstroke or heat prostration predisposes to another, and males are more predisposed than females.

An impaired functional condition of the skin and kidneys markedly increases the susceptibility to sunstroke and heat prostration. My observation proves that the same may be said of persons not only addicted to alcoholic beverages but also to the

excessive or even moderate use of tea, coffee and tobacco.

The explanation of the causation of sunstroke and heat prostration is aptly given by H. C. Wood, from his studies made at the Pennsylvania Hospital: "There is in the pons, or higher portion of the nervous system, a center whose function it is to inhibit the production of animal heat; and in the medulla oblongata a center (probably the vasomotor center) which regulates the dissipation of bodily heat. Fever is due to a disturbance of these centers, so that more heat is produced than normal and proportionately less thrown off. Let us suppose that a man is placed in such atmosphere that he is unable to get rid of the heat which he is forming. The temperature of the body will slowly rise, and he will suffer from a general thermic fever. If early or late in this condition the inhibitory heat-center becomes exhausted by the efforts which it is making to control the formation of heat, or becomes paralyzed by the direct action of the excessive temperature already reached, then suddenly all tissues will begin to form heat with the utmost rapidity; the body temperature rises with a bound, and the man drops over with one of the forms of *coup-de-soleil*. Heat exhaustion, on the other hand, with lowered temperature, represents a vasomotor palsy—i. e., a condition in which the existence of the heat paralyzes the center in the medulla oblongata, and the heat is dissipated more rapidly than it is produced."

Symptoms.—Sunstroke usually occurs in the afternoon in persons exposed to the direct rays of the sun, in a still, hot, humid atmosphere. Occasionally the patient, most likely an alcoholic, while at work suddenly falls unconscious; a few convulsive seizures

may occur, and despite all efforts in his behalf, dies of cardiac exhaustion. Soldiers on the march, bricklayers, hucksters, roofers, linemen, steeplejacks, etc., are particularly liable to sunstroke because of the direct exposure.

The symptoms of sunstroke are usually quite characteristic; rarely prodromes may be observed for a few hours or even days, during which time there may be general bodily weakness, abdominal pains, irritability, restlessness, impaired vision, dryness of the skin and irritability of the bladder. Frequently the onset of sunstroke resembles an attack of apoplexy or acute uremia. As a rule, there is sudden unconsciousness, with or without tonic or clonic convulsions or paralysis, flushed face, hot, dry skin, occasionally cyanosis, injected conjunctivae, contracted pupils, coated tongue, a high tension, non-compressible, bounding pulse, and stertorous, irregular respiration which may assume the Cheyne-Stokes type. Occasionally there is vomiting and incontinence of urine and feces.

If the patient's occupation is such that he is some height above the ground (linemen, roofers, steeplejacks, etc.), the attack may cause him to fall to the ground. In this case the patient may die almost instantly from the effects of the fall, and the diagnosis of sunstroke as the primal factor in the causation of the accident is often not a certainty but a probability.

The temperature in cases of sunstroke should be taken by axilla or rectum (preferably the latter) and is found to be anywhere between 105 degrees and 110 degrees to 113 degrees F. Cases are recorded in which the temperature just before death reached 115 degrees F. In a case under my observation the temperature reached 111 degrees F., the patient, whose resistance was good, and whose habits were beyond reproach, made a good recovery.

In addition to the extremely high fever, the patient may suffer with suppression of urine and symptoms of collapse. This condition may continue on for from a few hours to a day or more, ending in death through paralysis of the vital centres and asphyxia, or through a complication (pneumonia, meningitis, pulmonary edema, myocardial degeneration, etc.) or in recovery with or without such sequellae as imbecility, poor memory, chronic headache, peripheral neuritis, impaired speech, a persistently rapid, irregular pulse, epilepsy, anemia, and an extreme susceptibility to rises in atmospheric temperature. Rarely a fatal intestinal hemorrhage may intervene

during an apparently favorable progress in the patient.

In some cases relapses of high temperature with the return of coma or collapse may occur even after the complete restoration of the patient to consciousness.

Examination of the blood reveals the presence of a moderate leucocytosis and considerable degeneration of the red blood corpuscles, as evidenced by their crenated forms.

The urine is concentrated, high-colored and usually contains a trace of albumin, a fact not to be attributed to a co-existing uremia and confounded with it. Often one may discover a few hyaline, granular and even bloody casts—probably due to the effect of the degenerative influence of the high fever upon the kidneys.

Heat Prostration does not necessarily depend on direct exposure to the sun's rays, but usually affects those employed in close, excessively hot places, as mills, foundries, boiler rooms, kitchens, etc. The symptoms of heat prostration usually come on insidiously, with such prodromal symptoms as headache, weakness, dizziness, nausea, indigestion and vague bodily pains, the patient soon becoming exhausted, taking to his bed.

The skin is pale, cool and clammy, the pulse is rapid, feeble, compressible and of poor volume; vision and hearing are more or less impaired, but unconsciousness is the exception rather than the rule. There may be evidences of a slowing of the mental faculties, which, in more severe cases, may merge into moments of stupor. In some cases, because of the marked previous enfeeblement of the patient, there may be syncope or even collapse, though in typical cases under proper treatment an uneventful recovery occurs within a few days.

Occasionally heat prostration merges into a condition of sunstroke, with all its symptoms and dangers.

Diagnosis.—As already intimated, it is highly important, at least from the standpoint of treatment, to differentiate sunstroke from heat prostration, and also from other conditions with which it may become confused (acute alcoholism, apoplexy, uremia, meningitis, etc.).

A fall from a considerable altitude on a hot summer's day may or may not have been primarily due to insolation, and the resulting unconsciousness may entirely be due to a fractured skull and internal injuries with shock.

A patient suffering with either sunstroke or heat prostration may present an alcoholic breath, due often to the administration

of whiskey by a well-meaning friend or bystander, and because of this, the diagnosis of alcoholism and the hurried shifting off of the patient to the nearest police station may be a fatal error.

In all cases the following points of interest must be remembered: the history of the affection (as far as can be ascertained); the mode of onset; the presence or absence of fever, the state of consciousness, the urine, skin, pulse, respiration, the condition of the reflexes and the presence or absence of any bodily injuries.

In differentiating sunstroke from heat prostration, the following tabulation will be found useful:

*SUNSTROKE (INSOLATION)

- 1—History of direct exposure to the sun's rays.
- 2—Onset sudden, often with convulsions or paralysis.
- 3—Usually complete unconsciousness.
- 4—Skin hot, dry and flushed.
- 5—Injected conjunctiva, contracted pupils.
- 6—Temperature very high (105° to 113° F.).
- 7—Pulse high and bounding.
- 8—Respiration irregular, often Cheyne-Stokes in type.
- 9—Course brief, with guarded prognosis, terminating in death or recovery in from a few hours to a day or more.
- 10—Complications and sequellæ not uncommon.

HEAT PROSTRATION.

- 1—History of exposure to excessive heat, usually indoors.
- 2—Onset gradual; no convulsions or paralysis, but prodromes (headache, dizziness, nausea, etc.).
- 3—Rarely loss of consciousness.
- 4—Skin cold, pale and clammy.
- 5—Conjunctiva pale, pupils dilated or normal.
- 6—Temperature normal, subnormal or slightly elevated (100° to 102° F.).
- 7—Pulse weak and thready.
- 8—Respiration shallow and sighing.
- 9—Course greater in duration, prognosis favorable, usually terminating in recovery within a few days.
- 10—Recovery usually uninterrupted and complete.

Prognosis.—The prognosis is favorable in heat prostration, but guarded in sunstroke. The outcome in the latter condition depends upon the height of the fever, the presence or absence of alcoholism or other drug habits; the previous condition of the vital organs; whether or not a complication exists, and the promptness with which the proper treatment is instituted. The prognosis is grave in a person suffering with a second attack of sunstroke, and in whom relapses interrupt the progress of recovery. The mortality from heat prostration is probably from 2 to 4 per cent., that of sunstroke varies within wide limits, but may be said to be from 12 to 60 per cent.

Treatment.—The treatment must be considered under the heading of (a) prophylactic

and (b) the management of the attack.

(a) *Prophylactic.* The prophylactic treatment of sunstroke and heat prostration consists in the avoidance of the causal factors. The diet should consist of simple, wholesome food easy of digestion and assimilation. Sweets, pastries and fried substances should be interdicted. Overeating is distinctly harmful. The indulgence in alcoholic beverages is a practice to be condemned in persons whose occupations predispose them to either sunstroke or heat prostration.

As already intimated, the same danger exists in persons habituated to the moderate use of tea, coffee or tobacco, a fact which seems to have been overlooked by the profession. The explanation lies in the fact that these substances by virtue of their contained active principles not only reduce the vital resistance to disease, but bring about a condition of irritability and instability of the functions of the nervous system of which the heat regulating mechanism is a part.

The bowels should be well evacuated at least once a day, using if necessary one of the mild laxatives. Proper ventilation should be insisted upon at all times both at home and at work. Frequent cold sponges or baths should be taken during warm weather, and if the heat is extreme, cloths wet with cold water should be applied to the head and kept in place by a cap. Heavy, dark-hued clothing should be avoided, but linen and light textured material should be worn during the hot season; the quantity should be reduced to a minimum in those persons exposed to great heat (factory hands, firemen, etc.). Prolonged mental or physical exertion and long hours should be avoided as much as possible. Prolonged exposure to the sun's rays is especially to be guarded against. The functions of the skin and kidneys must be maintained in a normal state and to this end the inhibition of copious quantities of wholesome water (not ice water) is particularly beneficial.

(b) *The Management of the Attack.* The treatment of sunstroke is decidedly different from that of heat prostration. In the former all the symptoms point to excitation of the vital functions, in the latter, depression is characteristic.

The patient suffering with *sunstroke* should be deprived of his clothing and should be immersed in an ice-water bath which should be kept at a temperature of 40 degrees F., during which time the skin of the body should be rubbed vigorously to bring the heated blood of the interior to

ward the surface. The lowering of the temperature should not be too sudden, else fatal collapse may result. If the temperature has been reduced to 102 or 101 degrees the patient should be removed to a cot in a shady spot in the open air and covered with a sheet. The rectal temperature should be taken frequently, and any marked rise should be combated with more ice baths. In marked cases, characterized by a bounding pulse, cyanosis and a laboring heart, free venesection, followed by the intravenous injection of physiologic saline solution, will result happily. With the reduction in temperature consciousness usually begins to return, sometimes within a half hour, but oftentimes twenty-four hours elapse before consciousness is complete; at times this event is preceded by moments of delirium. Frequently the reduction in temperature is very gradual, occupying three or four days, consciousness gradually returning during the same time.

The head must be kept cool by means of an ice cap, and the feet may be bathed in hot mustard water. In some cases ice water enemata or the needle spray of cold water will be found very useful adjuvants in the efforts to reduce the temperature. In the event of cardiac weakness, hypodermic injections of strychnine, or camphor and ether or whiskey may be given.

Small doses of aconite or veratrum repeated as indicated may be administered if the pulse is high and bounding, and the heart is strong. Nitroglycerin will assist in reducing arterial tension.

In the asthenic type of sunstroke, where the heart is exceedingly rapid and becoming irregular, the hypodermic injection of digitalis "German" or digipuratum (combined with minute doses of veratrum to guard the pulse tension) has proven very gratifying in a few of my cases.

The sweet spirits of niter will enhance the action of the skin and kidneys as the patient's consciousness is restored.

The use of pilocarpine to promote diaphoresis, as advocated by some authorities, is, except in very rare cases, strongly to be condemned as a dangerous practice, tending to add insult to a heart which is already suffering with the effects of a grave toxemia.

As sunstroke is often characterized by symptoms of meningeal irritation, such drugs as quinine, salicylic acid and the like, which cause congestion of the meninges, should not be given. The usual antipyretic drugs are contra-indicated, not only because they are practically useless in this condition, but also because they are vascular depres-

sants. Triphenin or pyramidon in doses of grn. II to IV every three or four hours may, however, be given with advantage, having proven very serviceable, in three of my cases.

Though atropine and belladonna have their place as stimulants, it is well to avoid their routine use in sunstroke, as it may further retard the functions of the emunctories, particularly the skin, which is exceedingly dry in this condition.

Sodium bromide, 60 grains in one dose per rectum, repeated in 30 grain doses once or twice as indicated, will be found useful in the event of delirium or convulsions. If the latter exist, a few whiffs of amyl nitrite should be tried, or the patient may be given chloroform to the verge of anaesthesia. In the latter procedure we are selecting the lesser of two evils, i. e., the possible slight injury to the vascular and eliminative organs due to the administration of the chloroform, in preference to the probable grave danger of sudden death from cardiac failure or apoplexy from the continuance of the convulsions. Morphine, if given, must be carefully watched, as it may do more harm than good. It may be necessary to resort to artificial respiration and oxygen inhalation in some cases.

As soon as the patient returns to consciousness a course of calomel should be given followed by a saline cathartic to flush the bowels and relieve the congested liver. The diet should be liquid during the first few days, consisting chiefly of skimmed milk, buttermilk, orange albumen and plenty of water.

The patient must not be discharged too soon, for after a few days he may begin to suffer with violent headaches as an evidence of meningitis. In this event the meningeal congestion must be overcome by repeated venesection and the administration of veratrum.

It must be emphasized that one attack of sunstroke predisposes to another, so that due precaution must be taken to avoid recurrences. It may be necessary for some patients to remove to a cooler climate.

A case of *heat prostration* should be treated in many respects entirely different from one of sunstroke. Here the temperature is often subnormal, necessitating a *hot* bath, with a temperature of 105 to 110 degrees F. Hot water bottles should surround the patient, but care should be taken not to burn the skin. The temperature should be taken frequently, else the other extreme may be reached without the knowledge of the attendants.

If the temperature is above normal,

sponging with moderately cool or tepid water will soon overcome it, but an ice bath *must not be given*.

Keep the patient in a cool place, and loosen all constricting clothing about the neck and chest. To overcome the tendency to syncope, aromatic spirit of ammonia, spirit of glonoin or inhalations of amyl nitrite may be given. The bowels, kidneys and skin should be carefully watched, and the proper measures instituted to overcome any tardiness in their functions.

Weakness should be combatted by the administration of strychnine, digitalis and iron in addition to a concentrated nourishing diet.

Careful tonic treatment should be instituted during convalescence in order to avoid a relapse. If possible the patient should be sent to the mountains or to a cool seashore resort, where refreshing breezes, change of scene and cheerful surroundings are obtainable. He should receive plenty of wholesome nourishing food. If the blood be impoverished the administration of iron and arsenic is indicated. I have had exceptionally prompt results with arsenoferrous in these cases.

In conclusion it would be well to say that the observance of the ordinary common sense dietetic and hygienic rules, the proper quality and quantity of clothing, the avoidance of alcoholic beverages and excesses in tea, coffee and tobacco, and of other conditions which tend to devitalize the system, will serve to avoid the occurrence of both sunstroke and heat prostration.

1714 N. 7th St.

ICHTHYOL:

ITS NEW EXTERNAL EMPLOYMENT IN INTERNAL DISORDERS*

By Dr. A. Rose, of New York City

THE inspiration to write this paper arose from the series upon external therapeutics in *The Medical Council*, by Dr. Thos. S. Blair.

Ichthyol, a most remarkable substance on account of its curious origin and its wide adaptability to disease, has a very voluminous literature. The collection of all that has been published during the last thirty years would of itself make quite a library. And still there is something new which I wish to present, stating the circumstances under which I find the application of ichthyol to be the realization of a long-felt desideratum.

The enthusiastic study of bacterial processes has caused modern medicine to neglect

the importance of mechanical conditions, although they may often be the real cause of naso-bacterial affections.

The abdominal muscles perform important tasks; they preserve the physiological position of the abdominal viscera. When these muscles become relaxed or atonic ptosis of the viscera will occur. The abdominal muscles exert a significant influence upon abdominal circulation and innervation, control the distribution of fluids therein and in the tissues thereof. It is not the heart alone which controls the distribution of the blood; vaso-motor and muscular factors also enter in. Each muscle is both a pressure and a suction pump, which exerts an influence upon the distribution of the blood in the capillaries more especially, and upon the other fluids in the tissues themselves.

All of these functions require the expenditure of force. Whenever the equilibrium is disturbed between the task required of the heart and its power to perform it, we must facilitate the cardiac function by reducing the resistance against which it works.

Clinically, the heart action is of minor importance to the *iatros*, the beautiful Greek word meaning *the one who heals*. Either a normal or an abnormal heart may be inadequate to its task, while an abnormal one may be able to accomplish it. When we look only to the valvular anomaly and the blood pressure and bungle a little with digitalis, ether, wine, baths and rest, we are not *iatroi*, but mere physicians; for the *iatros* would study the whole circulatory mechanism in relationship to the task to be done, and he would regulate the mechanical forces which distribute the fluids in the body.

How little thought has been given to the possibility of a connection between abdominal relaxation—*atonia gastrica*—and heart disease! And how little to the possibility of such connection between *atonia gastrica* and intestinal or uterine hæmorrhage and diarrhœa!

Relaxation causes tissues to absorb fluids more readily, a fact which accounts for the obstinate hæmorrhages—*atonia*, postpartum and climacteric conditions, all of which resist treatment but are controlled when the tonus of the abdominal muscles has been re-established by means of support or the adhesive plaster belt.*

*"Etiology and Treatment of Gall Stones," Medical Council, April, 1907. "Atonia Gastrica in Relation to Gholithiasis," Post-Graduate, June, 1906. "Physiology and Pathology of the Abdominal Muscles," Surgery, Gynecology and Obstetrics, November, 1906. "Atonia Gastrica," by A. Rose. Funk & Wagnalls Co., N. Y., 1905.

*Medical Council, April, 1913.

The same reasoning is applicable to chronic diarrhoea caused by *tonia gastrica*, which resists all medication and the application of dietetic rules until after the cause—the atony—has been removed.

In order to demonstrate the relationship between *tonia gastrica* and the circulation in heart disease, I wish to again relate the following case:

An elderly gentleman suffered for several years from attacks of vertigo and unconsciousness; almost daily, sometimes hourly or at shorter intervals, the alarming symptoms appeared. The pulse rate was 27 to 31 beats in the minute; only alternate contractions of the heart caused pulsations at the radial artery. Every physician who saw the case, correctly diagnosticated it as a myocarditic affection, but treated it unsuccessfully because the co-existing *tonia gastrica* with distended abdomen had not been taken into consideration. Strapping of the abdomen, although it did not cure the diseased myocardium, was followed by the cessation of the attacks of vertigo and the heart was relieved to such an extent that even the imperfect contractions were sufficient to maintain necessary circulation in the brain and thus avoid attacks of unconsciousness.

I could add other just as striking examples from my practice—dyspnoea, hæmoptysis and cough in heart affections—which were relieved after the application of the abdominal plaster belt.

Chololithiasis is an instance in point demonstrating that there's little scientific foundation for a therapy based too exclusively upon chemistry and the neglect of proper mechanical treatment.

Combining support of the abdomen with regulation of the abdominal circulation and innervation, this belt, introduced by me in 1898, acts like the plaster of Paris bandage because of its equally-distributed pressure. But it has one objection; in *some* persons it causes irritation of the skin with intolerable itching and sometimes eczema. Some of the colleagues discarded it altogether on this account, while on the other hand many patients would wear it five weeks without inconvenience.

The point of this present paper is to call attention to the use of ichthyol in connection with the application of the abdominal adhesive plaster belt. I have been applying ichthyol to the skin before adjusting the belt.

The first case in which I used ichthyol in this way was a lady patient who had been unable to tolerate the belt longer than three days. She was suffering from neuras-

thenia with severe neuralgia, insomnia and gastro-intestinal disorders due to *tonia gastrica*.

My success in her case and the remarkable ease with which she wore the belt has prompted me ever since first to paint with ichthyol the parts to be covered with the plaster, and the results have been most gratifying. This procedure is applicable in all instances in which adhesive plaster is to be applied, especially with fractured ribs.

In my recent paper upon ichthyol in The Medical Council I quoted Nussbaum who said some patients may complain of unpleasant belching after they have taken ichthyol. My experience is that the belching or eructations soon cease, although a few people with very sensitive stomachs experience a serious sensation of pressure and cannot continue the remedy. In these rare cases I have substituted ichthalbin, a compound of ichthyol and albumen.

In order to obtain ichthyol pills of smaller size than those in the market, I had them made up of ichthyol sodium, as a mass made of this salt and containing five grains is the size of a two-grain pill made up from ichthyol ammonium.

173 Lexington Ave.

MUSHROOM POISONING*

Poisoning by this fungus is not at all infrequent, and consequently the treatment of this condition is worthy of careful consideration. In this country edible mushrooms found growing wild are gathered much more frequently than they used to be, both because of the example set by our foreign-born residents, and because of the greater demand for them as a delicacy, in hotels and restaurants. Mushrooms are also cultivated, and a certain variety brings a good price. It is perhaps rare for the poisonous varieties of mushroom to be dispensed by a hotel or restaurant, the greatest care being exercised in deciding that the product offered is edible, that is, non-poisonous; but children sometimes obtain and eat the poisonous mushroom, and private families occasionally cook and serve it.

The mushroom is rich in nitrogen, but it is uncertain how much of this nitrogen can be utilized as a food; it is said to be absorbed only in small part, and is likely, during its digestion, to cause some gastro-intestinal irritation in many persons. As a nutrient the mushroom is of little value, since a large proportion of it is water.

Over two thousand varieties of mush-

* Jour. A. M. A., April 13th 1913.

rooms have been described, some of which are harmless and others exceedingly poisonous. Gibson considers that the usual methods of distinguishing between edible and poisonous varieties are unreliable, and suggests the following considerations in the determination as to their value: "1. Avoid every mushroom having a cup, or suggestion of such, at its base; the distinctly fatal poisons are thus excluded. 2. Exclude those having an unpleasant odor, a peppery, bitter or other unpalatable flavor, or tough consistency." The *Amanita muscaria* and the *Amanita phalloides* are regarded as among the most poisonous, and contain the active principle muscarin or amanitin. The *Amanita muscaria* is "distinguished by its bright-orange or red pileus [cap] covered with soft, fugacious, whitish warts, its white, rarely yellowish lamellae [gills], and its white floccose stipes [stem], bulbous at the base and bearing, at its upper attenuated extremity, a white ring." The common edible mushroom is the *Agaricus campestris*, belonging to the subvariety of *Psalliota*, "distinguished by the silky floccose or finely scaly pileus, the somewhat reddish tint of the flesh, and the pinkish lamellae changing to a dark brown. There are many varieties, some of which are cultivated on a large scale, especially in France."

All fungi after being picked are prone to rapid decomposition. Some of the poisonous constituents in edible mushrooms due to decomposition, and some of the poisonous constituents of non-edible fungi may be destroyed or dispersed by heat, especially if thoroughly cooked. Many of the products of decomposition, however, and the poisons in poisonous mushrooms are irritant to the gastro-intestinal tract and poisonous to the nervous system. Some persons are more or less seriously poisoned even by edible mushrooms that are not fresh, and there are persons who have an idiosyncrasy for all mushrooms or for certain varieties.

The alkaloidal poison of the *Amanita muscaria*, termed muscarin, closely simulates in its molecular constitution cholin, which is a constituent of some animal tissues, and under certain conditions is set loose in the intestine and acts as a nervous irritant. This alkaloid muscarin, which is the constituent of non-edible mushrooms that causes poisoning, resembles in its physiologic action pilocarpine, although it is a very much more active poison.

After one or more poisonous mushrooms have been eaten, rarely will there be nausea and vomiting within a short time. Generally the absorption of the toxin does not take place until after the mushrooms have

entered the intestine. Symptoms of poisoning do not occur for several hours after the mushrooms have been eaten; then pain, cramps, reflex vomiting and watery purging are likely to occur. If much of the poison has been absorbed before this local irritation takes place, symptoms of central poisoning occur, as noted by quickened pulse, rapid respiration, dizziness, muscular tremblings, and perhaps signs of intoxication bordering on confusion and delirium. The pupils are contracted. If the poisoning is more serious, the respiration and heart fail and the patient may die in collapse, consciousness generally not being lost. As in pilocarpine poisoning, there is a more or less profuse perspiration, and a free flow of saliva and bronchial mucus. This profuse perspiration and the watery stools cause great thirst and prostration.

If for any reason an insufficient amount of the poisonous mushroom has been ingested to cause gastro-intestinal irritation, before purging begins a sufficient amount of the toxin may have been absorbed to cause the nervous symptoms to be the most important and prominent. This kind of poisoning does not occur until eight or ten hours after the ingestion of the mushrooms. In this form of poisoning the most troublesome symptoms are vertigo, disturbed vision, irregular and weak pulse and muscle twitchings, or actual rigidity. The extremities become cold and the face becomes pale or bluish; there may be collapse, and later semiparalysis. In these instances of late poisoning there may be drowsiness and stupor as well as intense dyspnea. A greatly impaired circulation may be the cause of this cerebral condition, as coma is probably not a part of true muscarin poisoning. When the symptoms of poisoning appear late, as just described, showing that a large amount of the toxin has been absorbed before vomiting or purging has protected the system, the prognosis is much more serious.

The treatment of mushroom poisoning depends somewhat on the time when the symptoms occur. If they occur soon after the ingestion of the mushroom, a brisk emetic is the first treatment; the choice of an emetic, whether zinc sulphate, ipecac or mustard water, is a matter of unimportance, provided that the stomach is emptied. As soon as the stomach is emptied by the emetic, or by vomiting without the aid of an emetic, large draughts of hot water or flaxseed tea, slippery-elm tea or starch water should be given to wash off and soothe the mucous membrane. As soon as the stomach is quiet and the vomiting has ceased, a

cathartic should be given; none is better than castor oil, as it is stated that an oil does not dissolve the toxic principle or promote its absorption. An ordinary dose of castor oil would be 30 Cc. (an ounce), given in the manner the least disagreeable to the patient. If the oil is not retained long enough to have passed into the intestine, a saline, as magnesium sulphate or sodium sulphate, may be given.

Alcohol in any form should probably not be given, as it may promote the absorption of the toxin. Strong coffee, however, is indicated. Hot, dry applications to the body, friction of the extremities and a hot-water bag at the feet tend to prevent shock and depression from this nerve poison.

The physiologic antidote to muscarin is atropine, which should be administered immediately, hypodermatically; 1/100 grain should be given, perhaps combined with 1/30 grain of strychnine, both of which drugs act also as circulatory stimulants. If the collapse is prolonged, the strychnine may be repeated within three or four hours. The atropine may be repeated in five or six hours, and to offset a prolonged collapse, some form of digitalis may be given, either by the mouth or hypodermatically. It should be remembered that digitalis acts slowly, and will be of little value for from six to ten hours. The value of camphor, given subcutaneously, as a cerebral and circulatory stimulant should be remembered. The contents of an ampule containing a saturated solution of camphor in sterile oil should be administered subcutaneously every hour for several doses, if needed. The coffee, or caffeine, should also be repeated.

Death may occur after two or three days from mushroom poisoning; therefore, even with apparent improvement, the patient should be kept at rest and all care be taken that sudden collapse does not occur.

If the vomiting persists, or the diarrhea becomes too profuse and continuous, the sedative and soothing action of bismuth subcarbonate should be utilized, and soothing, mucilaginous warm drinks should be given. A bland, warm cereal should be the first food given. As previously stated, the patient is likely to be thirsty and crave cold liquids, but it is better that he receive warm liquids.

If the vomiting becomes serious, or the purging is not tractable, and especially if there is severe pain, a hypodermatic injection of a small dose of morphine should be given. The liquids taken, either on account of thirst or for sedative purposes or as foods, soon promote elimination by the kidneys, especially if the blood-pressure has

been improved and collapse is not in evidence.

The prognosis is usually good in mushroom poisoning, though the patients are very ill for a few hours or days.

THE TREATMENT OF PSORIASIS*

By Jacob Bressler, M.D., of New York

WE treat disease most successfully by properly understanding its etiological factor or factors. In the case of psoriasis, however, no valuable etiological information is given us. What with the parasitic theory believed by some, the neurotic theory of others, the gouty and rheumatic diathesis adduced by a third class, I have concluded that the sum total of all these causative factors amount to a large round 0 (zero). Therefore, having no well defined cause, we treat this disease from a standpoint of large clinical experience and according to the success we have had with various methods.

In our dermatological clinic, where a great many cases of psoriasis are seen annually, we find it convenient to classify them into three groups, so as to facilitate the treatment:

1. Those having only a few lesions.
2. Those having a moderate number of lesions.
3. Very severe cases, with psoriatic lesions all over the body.

Four methods of treatment are followed in our clinic:

1. External treatment.
2. Internal treatment.
3. Internal and external treatment combined.
4. Special treatment.

Prophylaxis. In the beginning we always make it a point to inquire into the general health of the patient. Usually, patients are in good health and no general treatment is needed. If, however, associated pathological processes do exist, we treat them first. This has often resulted in a cure of the skin lesions. In these latter cases we institute proper treatment for the existing disease, together with general tonic treatment, country air, change of diet, etc. This method often works wonders, but as soon as the general health again becomes poor, a recurrence of the psoriatic lesions is the rule. Restricted diet is another motto we advocate to our patients; those who follow our directions do best. Recognizing

*N. Y. Med. Jour., April 5, 1913.

that an outbreak of psoriasis is often precipitated by an acute debauch or the regular use of alcohol, we strictly prohibit any excesses if the patient expects relief from our treatment. In people susceptible to attacks, the least traumatism, as scratching or rubbing, will bring out the lesions; therefore we warn patients against use of the tight belt, suspenders or tight lacings.

Actual treatment. No matter of what location, the parts are first thoroughly washed with spirit of green soap and water; then, for the first variety—a few lesions on any part of the body except face and scalp—we paint with:

Chrysarobini.....5ss to 5i
Acidi Salicylici5ss
Collodion Flex5i
M.

We also employ the chrysarobin as an ointment, this being a more active form of treatment for some cases:

Chrysarobini.....5ii to 5i
Acidi Salicylici5ss
Petrolati5i
M.

We continue to use the ointment until scaly lesions drop off, then we push the ointment a little longer, finally covering the remaining erythematous area with the zinc oxide ointment. In this way a few lesions are usually cured, but we never guarantee that an outbreak will not occur at any time in some other part of the body.

For the second variety—a moderate number of lesions—the same procedure is adopted, only larger amounts of chrysarobin ointment are used. With us chrysarobin is the drug of choice. It should be pushed until it produces a slight dermatitis, then covered with zinc oxide ointment. Each night the drug is applied and in the morning a bath is taken. In some individuals we find that a five per cent. chrysarobin ointment will produce a severe dermatitis, and so we use only a two or three per cent. ointment. We usually begin with a three per cent. and gradually increase until ten or fifteen per cent. chrysarobin is used. The discoloration of the skin from the drug we do not fear, as it soon passes away. Never use chrysarobin on face or scalp; we have seen a number of cases of severe conjunctivitis as a result. For the scalp use tar, ammoniated mercury or pyrogallol ointment.

Next best result is obtained with an ointment of pyrogallol:

Pyrogallolis.....5i to 5ii
Petrolati5i
M. ft. unguentum.

This drug produces less of a dermatitis than chrysarobin and may be used in large

amounts. Tar is a famous and reliable old remedy, especially when combined with mercury. It is especially adapted to face and scalp lesions, but care must be used not to prescribe too large doses of mercury, because of danger of absorption and poisoning. We usually give:

Olei Cadini5i
Hydrarg. Ammoniat.3ii
Petrolati.....5i
M.

Many other drugs are used, as thymol, oil of turpentine, salicylic acid, etc., but we confine ourselves to the drugs already mentioned, with very good results.

Internal treatment. If the continuous use of chrysarobin ointment does not help, and especially in extensive chronic cases, we are in the habit of stopping all external treatment and beginning a course of internal treatment alone for a period of from two to four months. We use arsenic in the form of Fowler's solution in five to fifteen minim doses three times a day after meals. Or, we sometimes use the cacodylate of sodium by deep injections with excellent results, especially in the hospital cases. We continue to use arsenic from two to four months, and in some cases get very decided cures. Not all cases, however, will respond to internal treatment, and in such we try the combined internal and external treatment with chrysarobin ointment. A good many patients have been cured by this combined method. The internal administration of potassium iodide has benefited some of our chronic cases.

Special treatment. The use of the Röntgen rays for chronic obstinate patches has given us excellent results with almost permanent cures. We expose the patient's lesions for about two to seven minutes, three times weekly, using a soft tube and placing the parts from six to twelve inches from the target. Treatment is given for two weeks, then suspended for two weeks; then another course is allowed. From four to eight weeks' treatment cures the psoriatic patch. Recently we had a very severe case of psoriasis in the dermatological wards of the hospital (Mt. Sinai). I gave this patient an intravenous injection of 0.45 neosalvarsan to see how it would influence the lesions. In forty-eight hours the lesions seemed to be getting smaller, but in a few days they were the same as before the injection. I gave him another dose of 0.45 neosalvarsan seven days later, but it had no effect on the disease whatever, and we had to continue our old treatment with chrysarobin ointment.

Prognosis. From our wide experience in

the clinic and hospital we are all agreed that an outbreak of psoriasis can usually be cured, but as for the permanency of such cure, none can be promised. The disease lasts for many years, and those who have treated psoriasis for any length of time will readily testify that recurrence is the rule and will do best never to promise a permanent cure, no matter what treatment has been followed.

319 East Eighth St.

A NEW TREATMENT FOR ACUTE GONORRHEA*

By O. L. Mulet, M.D., of Brooklyn, N. Y.

At the present day, when among physicians, especially in the larger cities, there is an almost universal tendency to specialize, it seems indeed a bold thing for a general practitioner to dare to treat a condition or a disease that belongs to a special field; and it is still more bold to imagine that he has discovered something new in such a field. Yet that is what I, who have steadfastly refused to allow myself to be drawn from the broad and interesting field of general medicine, am about to do by reporting the results which I have obtained in the treatment of acute gonorrhea, and for which I sincerely believe I can claim priority.

The progress that has been made in medicine and surgery during the last 25 years is wonderful; and while this progress has been made in many fields and is a just subject for our modest pride, we certainly cannot claim that any really great strides have been made in the treatment of acute gonorrhea. The treatment of this disease by vaccines or bacterins is reserved by the most experienced men for the chronic cases. There is another feature to this form of treatment that restricts its use, namely, the point of cost. The consensus of opinion seems to be in favor of the autogenous vaccines, and these are sufficiently costly to make the patient pause and try other means of cure before he agrees to this more costly treatment. In many cases this proves shortsighted economy; nevertheless, it is a condition which frequently confronts the physician. Otherwise than by use of vaccines in chronic gonorrhea, the treatment of this disease has undergone little change.

Not alone has the treatment of gonorrhea been unsatisfactory to the patient from the standpoint of time necessary for a cure, but the physician also has realized that this old treatment is far from entirely harmless, for

the effect of the balsams upon the kidneys is the very reverse of good. We know that they produce an active congestion of these organs, and while we have been taught to view this as ephemeral, it must be a question whether, when this treatment is continued over a long period, this is still true and that no permanent damage has been done to these vital organs. Furthermore, we must consider this effect of the balsams when administered to a patient whose kidneys already are the seat of some lesion. Under such conditions the result certainly would be bad, since the balsams surely aggravate the existing process, and such an aggravation could not logically be of an only ephemeral character. But even if there be no previously existing nephritic lesion is it reasonable to conclude that an active congestion of the kidneys, resulting from the therapeutic use of balsams in gonorrhea and which apparently disappears after the discontinuance of the drug, that this does not leave the kidneys in a state of weaker resistance for the future? I cannot pretend to authoritatively answer these questions, but to me they seem worth serious pondering; surely all will agree that personally each of us would prefer to go through life without having our kidneys subjected to a congestive condition induced by balsams.

Locally, too, there has been nothing distinctly new. It is true that new silver compounds have been devised, but still these have not yielded strikingly superior results.

The foregoing, then, may fairly be considered a resume of the treatment of gonorrhea as generally practiced to-day, and it is the one which until very recently I, too, have followed.

During the past summer a patient suffering from gonorrhea presented himself to me for treatment. A mixture of balsams was ordered for him, and it did him the usual amount of good; at his next visit to me an injection of the zinc sulphocarbolate was added to his treatment. On his third visit, which was about the tenth day of the disease, the idea of treating this disease locally with iodine suggested itself. I recalled the tolerance of the oral and the vaginal mucosa to tincture of iodine and the frequent good results which are obtained with it in gynecology. There was something fascinating in the idea, and I concluded then and there to find out how the urethral mucosa would act toward iodine, and I tried a dilution of Lugol's solution. This first experiment certainly was painful to the patient, but the next morning there was a decided improvement in the discharge, enough so to warrant further search for

*Med. Record, April 19, 1913.

some means by which this drug could be used in this condition. The next day I tried iodine in a blend of oils, and this was injected into the urethra with very little smarting and held there fully five minutes. The patient remarked that the smarting perceptibly lessened even during the time that the oil solution was in the urethra. This solution was given to him with instructions to use it three times a day. The next day he reported that the first injection had been without discomfort, but when he repeated it, it smarted violently. Nor is this strange when we recall the effect of iodine when applied at too short intervals; but he reported further that the discharge had almost disappeared. He was now ordered to make the iodine injection only once a day. Two days later he reported that the discharge had entirely disappeared and he stopped the injections, but in a few days the discharge reappeared. He was now directed to use the iodine once a day and the sulphocarbonate of zinc injection twice a day, and under this plan of treatment, within a week his discharge disappeared permanently.

My next case of gonorrhea came to me while I was still treating the foregoing. It was in a man without any previous venereal history. He received no internal medication of any kind, but was at once put on the oleaginous iodine injection. At first he did not prove apt at the art of urethral injection, and therefore there was not the prompt response to treatment that I had expected; but two days after he had mastered the art he very joyously informed me over the telephone that there was no longer anything the matter with him. From my experience with the other case I told him not to crow too soon and that I would see him at his office in a day or two. When I did see him he told me that the discharge had reappeared. I then ordered him to follow the same treatment that I had instituted in the latter part of the treatment of the previous case, and within a week's time had the satisfaction that he, too, reported himself definitely cured.

In the above two cases the iodine was used in 5 per cent. strength; one of the patients complained that it smarted rather severely. In the subsequent cases the iodine was combined with another oil-soluble antiseptic, which enabled me to use a weaker strength of iodine with practically the same effect, but with less discomfort to the patient. The result of this treatment in the other six cases was just a little better, owing to the knowledge that something more than just the iodine was necessary, such as the

sulphocarbonate of zinc, to bring about a definite cure. I do not intend to claim that maybe something else than the sulphocarbonate of zinc might not act just as well, but that just happens to be the thing that I had used very much in the past in treating gonorrhea before I devised this iodine treatment. Nor is the strength of the sulphocarbonate of zinc solution a matter of indifference; it should not be stronger than to have a just fairly perceptible sting; if stronger than this it can do more harm than good, and I think this is true of the strength of the solution of another substance which we may fancy to substitute for the sulphocarbonate of zinc. In every one of the eight cases to which this treatment was applied the diagnosis was verified by the microscope.

I believe that this treatment is applicable also to streptococcus and staphylococcus infections of the urethra.

The best results of this treatment can be obtained if the doctor will himself make the iodine injections, leaving the other, such as the carbonate of zinc or some other substance for the patient to make for himself, because relatively few patients succeed well with these, particularly at first, and the sooner this treatment is instituted the better the result will be. I tried a solution of iodine in glycerin, but this even in the normal uninflamed urethra, smarted, and this smarting increased the longer the solution was left in place; the smarting was still evident during micturition hours later, and it was evidently very unsuitable.

Of course we cannot and must not expect the same results from this in chronic cases; usually during the third week the posterior urethra becomes involved. Then the disease is in a territory that is particularly favorable to its spread and to spread into regions in which it becomes strongly buttressed against attack by ordinary means of treatment. The seminal ducts, the prostate, seminal vesicles, etc., all these about the end of the third week become more or less involved and no injection into the urethra can reach them; but from these remarks it must not be concluded that this treatment would prove entirely valueless in chronic cases. In such cases after an intelligent massage of the parts and these washed out by micturition, then an injection of iodine may reasonably be expected to do *some* good, but it would be indeed optimistic ignorance to expect such prompt results as I have reported for this treatment in acute cases. It is just in the chronic cases in which the microbe has become established in inaccessible places that the vac-

cines afford us a means of treatment and have yielded the most brilliant cures.

We must not allow ourselves to be misled into the belief that the treatment of chronic gonorrhea is the more important; while proportionately we see more chronic cases than we do acute ones, every chronic case of this disease had its acute period. Many chronic cases have been treated by reputable physicians; comparatively few cases become chronic from neglect or lack of treatment. Every physician has acute cases of this disease drag along three and four months in spite of his best efforts, simply because there has been no really effective treatment for the acute stage. With an effective treatment for the acute stages, there certainly should follow a diminution of chronic cases.

In submitting this report of my experience with iodine in the treatment of gonorrhea, I fully realize that it covers only a very small number of cases, but the uniformity of the results and the fact that all the cases had the common factor of acuteness certainly offers some definite data for our consideration. If by the use of this drug we can at once attack the disease locally, save the kidneys from an acute congestion, ephemeral or not, as that may be, save the patient from the digestive disturbances which these balsamic mixtures so often cause, then it is important. Furthermore, if by this treatment we can obtain a cure of an acute gonorrhea in a week or ten days, thus avoiding the complications so common to the latter stages—gonorrheal arthritis, then the sequelae—prostatic disease in later life, then this treatment is indeed important and my early report justified.

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TREATMENT OF BRONCHIAL ASTHMA

According to E. Meyer the effects of epinephrine seem to be superior to those of the older preparation atropine. The author also points out that it is not so generally known that many cases of cardiac as well as bronchial asthma are much improved by diuretin. This was demonstrated by Van den Velden who noted that 1 to 2 Gm. given before the expected attack (evening) will suffice. The preparation has been taken for weeks without harm.

In the discussion, Prof. Dr. Cahn stated that he had used diuretin since 1899 in cardiac asthma, with uniform success. He prescribes 1 Gm. two to three times, late in the evening. His attention was first directed to this indication by the effect of the

drug on one cardiac case with hydrops. Diuretin here did not increase the amount of urine but it proved superior to the hypnotics and narcotics in the prevention and alleviation of the nocturnal attacks of dyspnea. Pointing out that diuretin may be given over long periods of time, Dr. Cahn stated that one patient took 865 Gm. in 15 months without any untoward effect and without becoming accustomed to the drug. The author has also used diuretin for many years in bronchial asthma. In the purely nervous form the effect is doubtful, but good results are obtained in the bronchial type, especially if the heart is also affected. The fact that up to the present it has not been more generally employed in dyspnea is to be explained by the unhappy selection of its name, which calls attention to only one of its effects. In many cases, too, the dose employed was too small.—Deutsch. med. Woch., 1912, No. 38.

THE USES OF WHITE PRECIPITATE IN DISEASES OF THE SKIN*

By Douglass W. Montgomery, M.D., of
San Francisco, Cal.

WHITE precipitate or ammoniated mercury is one of the most valuable external remedies in the treatment of diseases of the skin, not alone because of its intrinsic effectiveness, but also because of its lack of objectionable features. It is an odorless, pure white, smooth, almost impalpable powder, and it mixes admirably with many other medicaments and with any of the ointment bases.

White precipitate is stimulating, and this stimulating property is often valuable, as it causes a reaction accompanied by increased blood supply, enabling the tissues to throw off disease. This stimulating quality varies with the patient's susceptibility. Years ago I prescribed a three per cent. white precipitate ointment for psoriasis, and excited a severe dermatitis. When the reaction subsided the psoriasis had disappeared and has not returned in twenty years. Kyrle has recently reported a case where there was a marked sensitiveness to mercury, and where white precipitate, prescribed for seborrhea of the scalp, caused a severe dermatitis of the scalp and face and Theodore Veiel mentions that he has repeatedly produced severe irritation by using salicylic acid and white precipitate salve on the scalp of white haired patients, on whom he could not, because of staining, use tar, chrysarobin or pyrogallol prepara-

*Canadian Practitioner and Review, Dec., 1912.

tions. These instances of extreme sensitiveness are rare, but what may be called a normal sensitiveness is common, and, as before indicated, some of the most valuable effects of the drug are dependent upon it. It is because of this sensitiveness of the skin to this drug that the pharmacopœial ten per cent. white precipitate ointment is in some instances too strong, and it is frequently best modified by mixing it with oxide of zinc ointment. Usually, for instance, the prescription for impetigo contagiosa is written:

Ung. Hydrargyri Ammoniaci.....3ss
 Ung. Zinci Oxidi.....3i
 M.

The Severe Critic on seeing me write a prescription as above, asked censoriously why I employed zinc oxide and why I did not just write the percentages of the ingredients with an appropriate ointment base. He furthermore sagely remarked that what was wished was an antiseptic, and that zinc oxide was not an antiseptic. I hastened to explain that white precipitate is an admirable antiseptic, and especially so toward the streptococci cause of impetigo contagiosa, but that it is also stimulating for the skin, and that this stimulation is particularly objectionable in a disease like impetigo contagiosa, where the skin is already over-stimulated. In order to modify the stimulating quality of the officinal ten per cent. white precipitate ointment it is therefore diluted to three and one-third per cent., and in order still further to modify it, a bland soothing powder, such as zinc oxide is associated with it. As for using the already prepared zinc oxide and white precipitate ointments in combination, instead of a percentage of each of the ingredients together with an ointment base, that also has its advantage. This special advantage lies in the fact that as these ointments are already mixed, mixing them together additionally triturates them, and renders the resultant ointment all the more bland and smooth. In an ointment so prepared the antiseptic quality is retained in a sufficiently great degree, while its irritating effect through dilution, through combination with zinc oxide and through thorough trituration is modified so as to be perfectly harmless to the average skin.

It is interesting to know that this application of a mixture of white precipitate and zinc oxide ointments in these proportions was used for impetigo contagiosa by clinicians long before it was proven that this disease was due to streptococcic infection, and indeed long before it was very

precisely known or appreciated that it was a microbic disease.

It may be further remarked that the Severe Critic is often an intolerable bore. He is frequently that omniscient sort of genius who has his oar in every man's boat and sips the honey from every flower, and in his acquisition of knowledge neglects acquiring the dexterous application of it.

This combination of white precipitate and zinc oxide salves together with boric acid lotion forms one of the very best treatments for streptococcic paronychia, commonly called "run round" of the nail. This paronychia may appear as the sole manifestation of the disease, or it may occur secondarily to impetigo contagiosa of the face. A compress of two or three thicknesses of gauze, saturated in a four per cent. watery solution of boric acid, is applied around the finger, and covered with oil silk, held in place with a bandage. The moisture of the dressing and the heat of the finger cause this dressing to act like a poultice, softening the pustules and crusts and permitting the ointment which is now applied to penetrate as far as is required.

White precipitate ointment diluted and used in the same manner in conjunction with boric acid solution forms one of the best treatments for those other two severe streptococcic infections, pemphigus neonatorum and ecthyma. When the inflammatory reaction in either of these two diseases, or in any of the streptococcic infections, is very severe, the boric acid solution may be advantageously combined with liquor alumini acetici in this way:

Liq. Alumini Acetici..... 30.00 Cc.

Acidi Borici Sol. Sat.....300.00 Cc.

M. Sig.: Saturate compresses, apply, and cover with oil silk to retain the moisture.

It must never be forgotten that one of the chief characteristics of the superficial streptococcic infections is the formation of crusts, under which the micro-organisms live in safety. Lotions of whatever constituents, may fail to soften and remove these crusts, and the antiseptic ointment, not reaching the micro-organisms, fails for that reason alone to cure the disease. Forceful removal of the crusts is not good practice, as thereby the skin is injured and the infection is spread. It is just here where the boric acid starch poultices as employed by Jamieson, do so much good. A fairly thick paste is made by pouring hot water on powdered starch. A heaping teaspoonful of boric acid powder is added to about four ounces of such a paste. Apply as poultices, and renew about every half hour.

There is no ammoniated mercury in the

French Codex and therefore it is rarely mentioned by French authors. The "white precipitate" of the French is often really calomel, not ammoniated mercury. In a disease such as impetigo contagiosa, that is usually so easy to treat, the non-employment of ammoniated mercury does not much matter, as one can usually get along nicely with boric acid ointment, calomel or yellow oxide of mercury, all of which are cleverly and effectively used by French physicians. Occasionally, however, streptococcic infection is either very severe or very enduring, and the very best means are then necessary to combat it, and it is our opinion that ammoniated mercury, under such circumstances, constitutes one of the very best medicaments we have. Besides being a cutaneous stimulant and an antiseptic, white precipitate acts specifically on the skin in a way analogous to the red and yellow oxides and the mild chloride. The manner of this specific action has never been satisfactorily explained. It is known that this specific action is soothing, beneficent and antipruritic, as shown by the universal employment by oculists of the red and yellow oxides, and of calomel in blepharitis and in irritative troubles of the lids and conjunctivæ, and also by their hardly less extensive employment by dermatologists for seborrheic eczema, psoriasis and other catarrhal cutaneous inflammations, and for pruritus. White precipitate differs from calomel and the red and yellow oxides by being more stimulating and by being more actively antiseptic when applied on the skin.

It is probably this specifically soothing action together with its antiseptic power that renders white precipitate ointment such a valuable remedy in some cases of acne. Acne is by no means a simple disease or a simple infection. Erythema of the skin plays a distinct role in many cases. After the pyogenic infection has been controlled, there is left, in these cases, a flushing of the skin in which pyogenesis arises at the first opportunity. Either lotions containing mercury bichloride or an ointment made of equal parts of white precipitate ointment and zinc oxide ointment, or of the full ten per cent. white precipitate ointment may do better than anything else in such cases.

In psoriasis and in chronic indurated patches of eczema white precipitate ointment is an excellent remedy, and is often advantageously associated with tar, especially coal tar. For years I have used the following prescription that I first learned from Louis A. Duhring:

Liq. Carbonis Detergentis.....51
Hydrargyri Ammoniaci Pulvis....grn. xx
Lanolini
Vaselliniââ ãss
M. Sig.: Use once a day well rubbed in.

Jadassohn recommends much the same prescription for psoriasis of the face and hands, as:

Liq. Carbon. Detergentis.....2-20 Cc.
Hydrarg. Præcip. Alb.....5-10 Gm.
Adipis Lanæ 50 Gm.
Ol. Oliv. 20 Cc.
Aq.ad 100 Cc.
M.

The beneficent action of white precipitate when used on the face and hands leads naturally to the subject of regional susceptibilities and limitations in the treatment of diseases of the skin. For instance, chrysarobin, which is such a fine topical application in psoriasis generally, is notoriously treacherous when used on the scalp or face, because of its liability to cause a severe chrysarobin dermatitis. Furthermore, chrysarobin stains the hair a purple color, and is therefore inapplicable as previously indicated in light or white haired people. Chrysarobin also stains the nails a deep brown, and is, therefore, very disagreeable to those particular about their appearance. It is just in these situations that white precipitate, which is colorless, odorless, and does not stain, acts as an effective surrogate for chrysarobin.

White precipitate may also be used as an insecticide in pediculosis capitis. A curious and not uncommon combination of diseases may be mentioned here. The favorite situation of the pediculi in pediculosis capitis is from the nape of the neck up into the hair of the back of the head. In children this is apt to be combined with staphylococcic infection, so that the patients get an impetiginous eczema of the back of the head extending down on the neck, and an impetigo of the face. White precipitate ointment diluted about one-half with vaseline meets the indications for the control of both infections. It must always be remembered, however, that petroleum mixed either with vaseline or with balsam Peru is the best insecticide for pediculi of the head.

White precipitate combined with mercury bichloride is used for lentigo or freckles. Of these two drugs I consider the mercury bichloride the most effective in these cases, and from neither can much be expected.

To resume: We find that white precipitate is stimulating and occupies a place, in this respect, between the bichloride of mercury, which is corrosive, and the monochloride or calomel, which is soothing. It

is more antiseptic on the skin than the bichloride. Mercury bichloride is a poor antiseptic for the skin, because it irritates it and lowers its resistance, and furthermore because it so readily joins with the albuminous exudates and constituents of the skin, forming inert albuminates. White precipitate on the skin probably acts analogously to calomel powder in the eye. It is now held that calomel powder, when dusted in the eye and coming in contact with the sodium chloride of the tears forms minute quantities of bichloride of mercury that are sufficiently toxic for bacteria and yet not in large enough quantities to be detrimental to the conjunctiva. In the same or in a similar manner the ammonio-chloride of mercury may form minute quantities of the bichloride—not enough to over-irritate the skin, but sufficient to kill the bacteria. It is this very point of doing enough harm so as to make life conditions uncomfortable for parasites, and yet not enough harm to interfere with the tissues of the host that is the chief aim in many of our therapeutic measures.

TRICHINOSIS*

By Thomas F. Leen, M.D., of Boston

Physician in Chief to the Carney Hospital, and Assistant in the Theory and Practice of Physic at the Harvard Medical School.

Of parasitic diseases none better than trichinosis opened up pathways for scientific progress and study, from the time in 1828 when small calcareous bodies were noticed in human muscle, up to 1898, when Thayer and Brown found practically pathogomonic blood changes pointing to an animal parasite in this disease. And at present, though of great economic interest, it has thrown open to biologists important questions, one in particular, the origin of the eosinophile, which, if discovered, will be an important scientific acquisition. Clinically, the disease is a definite entity, with a symptom-complex based on pathological soundness, and though not frequent may be generally readily diagnosed. From this view it will be presented, as well as its interesting medical history, and the simple pathology of the parasite, which in every disease is of the utmost importance for proper understanding and treatment.

During the past six years there have been two cases at the Carney Hospital, the more recent one last October.

It is a febrile infectious disease appearing sporadically or epidemically, originating by infection with an animal parasite, a round worm, the trichinella spiralis, con-

tained in pork, eaten raw or insufficiently cooked. Before 1860, the presence of the parasites in the muscles was regarded as an anatomical curiosity, until Zenker reported clinically his classical case in Virchow's Archives, Band xviii, which may be said to be the most important helminthological contribution of the 19th century.

CASE 1. A girl aged 20 was admitted to the Dresden City Hospital on January 12, 1860. She had been ailing from Christmas and about New Year had to go to bed, complaining of debility, sleeplessness, loss of appetite, constipation, fever and thirst. At first the fever was very intense and the abdomen distended and painful. Although there was no enlargement of the spleen, and rose-spots were absent, the diagnosis of typhoid was made. Very soon there developed throughout the entire muscular system extreme pain, particularly in the extremities, so that she complained day and night. The arms and legs were bent at the elbows and knee joints, and could not be extended without the greatest pain. An endematous swelling of the legs was present. Later a low typhoidal pneumonia appeared. The patient became profoundly apathetic and died on January 27. The autopsy was performed next day, and to quote Zenker, "one can judge of my astonishment when I, in the first microscopic preparation, saw at a glance a dozen non-encapsulated free trichinae in the parenchyma of the muscles." Further investigation showed the muscles swarming with worms. No involvement of Peyer's patches was present.

In this case case he determined two points of vital importance, first, the presence of living adult trichinae in the intestines, and, second, found muscle-trichinae in the flesh of the animal, a portion of which the girl had eaten. To this newly discovered disease Zenker gave the name Trichiniasis. At once the disease began to be recognized, especially in Germany, where for years past inexplicable epidemics caused large mortality, supposed to be due to a chemical poison from rotten meat.

The first great epidemic of etiological importance occurred in Saxony in 1863, with a mortality of 16 per cent. Great astonishment was caused throughout Germany in 1865, when in the town of Hedersleben of 2,000 inhabitants, 337 were infected and 101 died. Klopsch in 1866 amputated a patient's breast for carcinoma, and while operating, found in the pectoral muscle encapsulated trichinellae which were still living. The affected patient remembered that in 1842, twenty-four years before, she, with two of her family had been taken sick for several weeks with violent bone, joint and muscle pain, and edema.

In 1851, several people near Hamburg, after eating ham, were taken sick, and three died. A cat having eaten also of it began to move about very slowly and in evident pain, later dying. The cause of the disease was unknown. One of those affected be-

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came insane, and at his death in 1865, Tengel sent a piece of his muscle to Virchow, who found it almost entirely infiltrated with calcareous trichinella capsules. Freed from the capsules the embryos gave positive signs of life and infected rabbits fed on them. This shows an exceptionally long life and ability of the encapsulated forms to infect for thirteen and a half years.

Geographically, it is universal, and epidemics have been reported in Germany, England, Austria, Switzerland, France, Russia; and in North America, first found in swine by Leidy in 1846 and in humans in 1864. It is widespread in North American swine.

Etiology. As Zenker first showed, the disease in humans is due to the eating of trichinous pork, and that its habitat is in swine. As well the rat is a carrier as it spontaneously infects itself. They have been found also in the wild-boar, mouse, cat, dog and some others. Experimentally the infection was produced in herbivora—rabbits and guinea-pigs. The hog for man is always the most deadly carrier of this dangerous parasite. An infection by beef, veal, mutton or horse-flesh has never been observed. The trichinella spiralis is of the class of round-worms, parasitic in man and different animals, living sexually separated, and when isolated visible to the eye. In 1835 it was named by Owen, trichina spiralis, and sex differentiation was made out by Virchow and Leukart.

The whole development-cycle combines essentially three stages: (1) the stage of sexual maturity or intestinal trichinae; (2) the emigration and growing of the young embryos in the muscle; and (3) the resting-stage or the muscle-trichinae.

The First Stage, or Intestinal Trichinae.—When the infected pork is taken into the stomach the action of the gastric juice frees from their capsule, and connective tissue covering, the trichinae from the ingested muscle, and moving along into the intestine in two or three days they grow to mature males and females. Then copulation begins and also fertilization of the eggs. Four to five days after fertilization, that is, six to seven days after eating the trichinous pork, the birth of the embryos begin.

Without entering too deeply into the anatomy of the worm, there are a few facts you should know to aid you in the explanation of the migration of the embryos. The adult female is longer than the male, just over 3 mm., and the male one-half as long. Up to the period of copulation they are about the same size, but after, there is further growth of the female due to the

stretching of the uterus. The caudal end of the female contains the ovary and from it the eggs pass upward through the oviduct to the uterus, where they are fertilized, and developing into embryos are extended into the vagina, which empties at the anterior fifth of the body. They appear first, as I have stated, six or seven days after the release of the muscle trichinae. At this time we find all stages of embryonic development, from eggs before fertilization, up to the perfectly formed embryo ready to be deposited by his mother.

The Second Stage of Development—the Embryos.—As they are born they are very small and the sexes show no appreciable difference in size, as the adult, but are slender cylindrical worms, .08-12 mm. Just before their birth their mothers bury themselves in the mucus and lie snake-like about the intestinal villi or penetrate the crypts of the lower duodenum and upper ileum. With a boring motion of their anterior end they raise up the epithelium and work into the stratum proprium or basement membrane of the mucous membrane, thus escaping eviction by peristalsis and moving intestinal contents empty their young brood directly into the lymph spaces. Only exceptionally are they born in the intestinal lumen, and it is then a question if they ever find their way to the lymph-spaces. They are born on an average of one every one-half hour, and the birth of countless embryos from the same female extends over several weeks. Staubli reckons 1,000 embryos to a female, and Leukart 1,500, and Krabbe fed 400 muscle trichinellae to a rabbit, and five and one-half weeks later its muscles contained several hundred thousand young worms.

How do they arrive at their destination, the striated musculature? This has been the subject of much discussion. The embryos, freed from the females in the intestinal walls, seek out, by their ability to move, the lymph vessels. Under certain conditions they are borne directly into a central lymph-vessel, and with the lymph they pass through the thoracic duct into the venous system to the heart, from where they are thrown with the blood, after going through the lesser circulation, into the peripheral arterial system. Hence they can be shown in the circulating blood at their maximum 8-25 days after infection.

The embryos leave the capillaries in the striated muscles, remaining only a very short time in the connective tissue, being found there only with great trouble, and penetrate quickly into the primitive muscle bundle, where they show their typical em-

bryonic form. The fact that they are not found in the connective tissue, leads to the supposition that they are attracted to the muscle by some chemical affinity. Though the entire striated musculature may be infected, that of the diaphragm, intercostals, larynx, tongue and eye, is the more heavily hit, and this is not due to the fact of their easy and quick delivery to the groups of muscles lying in the vicinity of the diaphragm, but these muscles are the most active in the body and, therefore, have the richest blood supply. It is agreed unanimously that the beginning of migration to the muscles occurs on the ninth or tenth day after infection.

Inside the muscle fibre, the embryo quickly grows, due to osmotic absorption of food, and in ten to fourteen days it is about ten times its original size, and it begins in the third week after infection to roll itself spiral-like in the much swollen spindle-like muscle fibre, this process continuing for two weeks more, when it reaches its full growth.

Third, the Resting Stage.—Hence, after four to six weeks from the ingestion of trichinous pork, the embryo enters the resting-stage, and then begins the formation of a capsule about it, taking three months for its completion, later becoming calcified. During its period of rapid growth important anatomical changes take place, especially the development of a digestive tract and sex organs. Spirally rolled within their capsules they remain in a latent stage, perhaps for years, when they finally, after ingestion in man's or an animal's stomach, are freed from their capsules and their new life opened.

Trinichellae, as well as in the blood and striated muscle, are found in the mesenteric lymph-glands, peritoneal cavity, pericardial cavity, pleural cavity, lungs and myocardium, but never as older or encapsulated forms, because as Graham has shown, they only have the power to grow in that particular type of muscle fibre which has a sarcolemma. Often heart-immunity is spoken of, as no one has ever found there perfect mature embryos. But biologically there is no immunity. Recent investigation shows that heart-muscle fibre in a certain sense possesses no sarcolemma, that is, no outside covering, and when the embryo tries to bore in, there is nothing to resist it, as the contractile muscular protoplasm is washed away, and it always remains outside the muscle-cells, and acting as a foreign body and irritant, an inflammatory process starts up about it and it is destroyed. This same result occurs in connective-tissue and

fat. But in the destruction of muscle-fibres secondary fat development results and surrounds the encapsulated embryos.

The symptom-complex may be divided into three parts corresponding to the life-cycle and pathology of the worm, as has been stated. Whence and how and what the early symptoms may be is inconstant. General constitutional and gastro-enteric disturbances are the rule. General discomfort, anxiety, dull heavy headaches, dizziness, nausea and vomiting, choking sensations, chilliness, and diarrhea, with more or less violent colicky abdominal pains. The vomiting and diarrhea may become intense, and the latter may be followed later by obstinate constipation. The appetite usually disappears. The tongue shows nothing characteristic, often dry and more or less heavily coated. During this general period of lassitude an increasing fever appears. Occasionally very early an intense lameness of the muscles appears, in flexors, neck and lumbar region. Kratz found this in mild as well as severe cases, and considered it the most constant early symptom, which after some days subsides. The patients when this and the diarrhea subsides, think they are convalescing and some try to work, but are compelled to go to bed. This muscle-lameness appears before the beginning of embryo-wandering, and it cannot be explained by muscle-invasion. Some say it is due to reflex action from the intestines, others a sympathetic affection, but Friedrichs ascribes it, as well as the severe general disturbances, edema of face and the high initial fever, to an intoxication from dead trichinellae, as seen in roundworm, fish tapeworm and other parasitic infections.

The most important pathognomonic symptom, quite constant and often generally the first, is the edematous swelling of the eyelids, upper and lower, and of the face. Seldom is it lacking and first appears on the seventh day. Somewhat later, from the ninth day on, there is edema of the extremities, more often the legs than the arms, and as well at times the scrotum. Renz twice saw scrotal edema without heart-failure, or albumen in the urine. The lid edema after some days disappears and may return later, but that of the legs is obstinate and persists a long time into convalescence. It is not easy to explain the early edema of the lids on account of the many views, as embryo-migration, vaso-constriction caused by an irritant, and that of the extremities is laid to heart weakness.

The future course of the disease develops symptoms which better be discussed system-

atically in relation to the individual organs.

The *sensorium* is generally undisturbed, though delirium has been noted in a few fatal cases, accompanied with violent attacks of dyspnea. A meningitis picture, a curled up body, stiff neck, and Kernig sign, has been present, but lumbar puncture has been negative, indicating meningismus only. Bothersome sleeplessness at the height of the disease is very frequent, and may be present early, though from it children do not suffer. Epigastric pain occurs the second week and is ascribed to the migration of the young brood to the diaphragm. "A sudden feeling of pressure and constricting pain in the pit of the stomach, extending to the back, strikes the patient with syncope and collapse, cold hands and feet, small, intermittent pulse," symptoms similar to what Romberg has described as celiac neuralgia. This attack may last from six to twenty-four hours, followed by a profuse sweat. Complete skin anesthesia, lasting for a few days, has been reported, and itching, and paresthesia occasionally.

A characteristic symptom is profuse sweating in mild or severe cases, appearing early and lasting throughout. The skin reflexes show no essential change, but the patella, tendo-Achilles, and triceps reflexes are frequently lost or diminished, returning as patient improves. There is a change in the electrical reactions of the muscles.

Temperature may be absent, especially in children. However, in most cases there is more or less elevation and in severe cases to 104° and more, beginning the first day and reaching its maximum generally in nine to eleven days. Frequently the temperature curve runs as a typical typhoid, showing often morning remissions. If it continues indefinitely or is interrupted by new elevations, there are generally complications of the respiratory tract.

The pulse early is hardly more frequent than normal, from 80 to 90, and is similar to a typhoid. When there is beginning respiratory trouble, there is an increase to 100-120. Rarely are there striking disturbances of heart activity, as intermittent pulse with bradycardia to 48, and in women the development of soft murmurs.

Gastro-enteric symptoms, especially the early, have been spoken of. Also severe diarrhea, or obstinate constipation, with abdominal pains, can continue throughout. Mucus, muco-bloody and bloody stools have been described, the latter causing death. At autopsy in such cases gastric, duodenal and intestinal ulcers were found, and experimentally there seems to be a relation between

the two, for in a trichinous infected cat, three round ulcers of the duodenum were found, and four times in infected rabbits hemorrhages and hemorrhagic erosions of the gastric mucous membrane were seen. These may be due to embolic obstruction of small vessel-areas by wandering embryos.

The spleen generally is not enlarged, though one observer noted it present in 38 out of 46 patients, and if it is, it is due to a mixed infection, and not a peculiarity of the disease.

Muscle-lameness, appearing as an early symptom, merges slowly to muscle-stiffness, due to embryo migration and ultimate changes resulting. This depends essentially on the intensity of the disease, that is, on the number of parasites piercing the muscle, for in mild cases and in children it may be absent. The patients feel as stiff as a poker, and the muscles are swollen, of wooden hardness, and very sensitive to pressure. Motion causes intense pain. All the muscles may be hit, yet the neck and lumbar muscles more so, but less the muscles of the extremities, particularly the flexor, so that the patient presents a typical posture as he lies motionless, holding his limbs in a moderate position of flexion, as though he had acute angular contractures of the elbows and knees. Muscle weakness of the highest degree may be present without considerable sense of pain. The muscle stiffness sometimes disappears in five days, and has lasted 112, but generally in severe cases five or six weeks, corresponding to the pathologic changes. The muscles of mastication and swallowing may be affected and lead to trismus. The tongue is often difficult to move on account of its increased size, and the laryngeal muscles are severely attacked, speech-function suffering, hoarseness, and later aphonia and edema of the glottis.

The migration into the respiratory muscles, the diaphragm, intercostals and sternocleido-mastoids make respiration very difficult and painful, resulting in serious dyspnea, inactivity of the diaphragm, and serious hiccoughs. The respiratory interference and its sequelae play an essential part in the fatal cases. Sometimes the first symptoms may be swelling and pain in the muscles without temperature, and slowly developing and creeping leads to severe trichinosis. Sometimes cases of so-called rheumatism of the muscles, with "rheumatic pains" of one to ten years' standing, were correctly diagnosed by muscle excision and evidences of trichinella found.

The eyes sometimes have limitation of motion in conjunction with eye-pains, con-

junctivitis of a severe nature, with well-marked subconjunctival ecchymoses appear. The eye-grounds are negative.

Very often bronchial catarrh, due to deficient expectoration on account of weakened respiratory muscles, with often broncho-pneumonia and a harassing cough, or frank pneumonia, is present.

The skin shows sudamina from the profuse sweats, severe itching and occasionally petechiae. Acne and furunculosis are frequent and herpes rarely.

Slight urinary retention is frequent and incontinence when there is great weakness. The urine is of the fever type and albumen and casts appear when the renal irritation is severe. A very strong diazo-reaction appears, much more so than is ever seen in typhoid or tuberculosis, and is a constant phenomenon.

The stools are diarrhetic, pea-soup, or rice-water in character, occasionally bloody, or constipation may be present. Few cases have been reported where the embryos or parasitic were found in the stools.

Sputum shows eosinophiles, and where blood has been raised, in a case of Askarnazy, embryos were found.

The blood in trichinosis is not only of the greatest importance for differential diagnosis, but to the actual meaning and origin of the eosinophile it is of general scientific interest.

After infection the first stage shows a polycythemia and a polychromhemia, and later a mild anemia develops. There are no morphological changes, as poikilocytosis and blast-formation, and these cannot be produced experimentally in guinea-pigs, even to lethal dosage. The leucocytes diminished in typhoid are increased in trichinosis, and the great increase is due to the eosinophile. It is to the great credit of American medicine that this was proven, the first observations being made in four cases at the Johns Hopkins Hospital by Thayer and Brown in 1897. The severer the disease the greater the eosinophilia. Of 44 severe cases 33 gave estimations above 20 per cent., and of 16 mild cases only five. Of this group the highest estimate was 62.2 per cent., and experimentally in guinea-pigs 52 per cent.

In severe cases the clinical symptoms are so marked and distinctive that from them a positive diagnosis may be made, but the inestimable value of an eosinophilia in mild or moderate cases is of the greatest importance. Experimentally after feeding trichinellae to guinea-pigs the following results were obtained::

1. A leucocytosis appeared in seven to thirteen days.

2. A genuine eosinophilia appeared.

3. The increase of the eosinophiles appeared earliest in eight days.

The eosinophilia appears not at the time of the worm infection as a result of poisonous materials from the capsule freed in the stomach, and absorbed in the intestine, nor as a result of chemical processes in the intestines, but stands in close relation to the migration of the embryos and their entrance into the musculature. For months and even years after recovery these cells are increased.

In mild cases the disease lasts two to three weeks, but much more often six to seven weeks, and in a large number of cases much longer. According to Stiles, Wardwell and Hasall in Germany were observed, from 1860 to 1880, 8,491 cases with 513 deaths, 6.04 per cent.; from 1881 to 1896, 6,326 cases with 318 deaths, 5.02 per cent.

In epidemics the mortality varies from 30 per cent. to nil. Death occurs as early as the end of the second week and the majority from the third to the fifth week.

[The author here reports a case treated at the Carney Hospital.—Ed.]

As regards immunity, there is none, for every animal susceptible to it may be reinfected.

Differential Diagnosis. It is an acute febrile sickness with more or less marked gastro-enteric symptoms, lameness of the muscles, edematous swelling of the face, mainly the lids, redness, and, eventually, ecchymoses of the conjunctiva, disturbing sleeplessness, profuse sweats, muscle pains, muscle stiffness and hardness, absence of patellar and Achilles reflexes, Kernig phenomenon, absence of enlargement of the spleen, strong diazo-reaction, and blood showing leucocytosis, eosinophilia, embryos circulating in the blood, and muscle trichinae in striated muscle.

To differentiate it from typhoid is confusing because of the slow onset, gastro-enteric disturbances, a continued and ascending temperature, the apathy, the positive diazo, especially when there is no enlargement of spleen and no Widal. But against it are the face and lid edema, the marked muscle symptoms, and the later absent spleen, absence of rose-spots, and the leucocytosis and eosinophilia.

Heart and kidneys as causes of the edema may readily be excluded by stethoscope and urine; as well as inflammatory process of face or scalp.

Against sausage and meat poisoning of a toxic nature, trichinosis is not so sudden or violent, and the absence of edema of lids, muscle lameness and of blood picture.

Rheumatic troubles may be ruled out by edema of face, eosinophilia, and cause of the disease.

Acute primary polymyocitis is difficult to differentiate, as the eosinophilia does not aid, but examination of muscle from the deltoid or biceps will show trichinellae, and perhaps the blood embryos.

Multiple neuritis is easily differentiated.

Therapy.—If only a short time has elapsed after eating the infected food, copious stomach washings and thorough catharsis should be tried. Strong antihelminthics, such as santonin, extract of male fern, glycerine and benzol in frequent large doses. Later the fact that the worms are pressed in the crypts and intestinal mucus, strong drugs might tend to drive the worms further into the mucous membrane. So cathartics are given, as calomel, compound infusion of senna, castor oil, etc., to keep the intestine thoroughly clean and wash away any worms which have temporarily lost their grip. For direct action on the worm, glycerin, benzol, the picronitrate of potash and soda. Now that Ehrlich in chemiotherapeutic experiments has given us salvarsan and neosalvarsan, they are well worthy of trial to kill the embryos in the blood. Colloidal silver (collargol) 4 to 6 Cc. of a 2 per cent. solution has been tried intravenously for the embryos. Symptomatic treatment, as each case demands, should be given, and diet accordingly.

Prophylaxis.—The mode of infection is well known, therefore we must prevent the eating of raw or insufficiently prepared pork products, and further efforts to fight the infection in swine. All slaughtered hogs should be inspected with the microscope, for early trichinous pork cannot be detected with the naked eye, though the older forms may be seen as white calcified pin-head specks on and in the muscle. Inspection of the diaphragm, ribs, larynx, and tongue muscles should be made always, on account of their frequency of infection. No land is free of the disease. The largest percentage of infection in swine is in the United States, from 2.7 to 16.3 per cent. Curiously, we have no inspection for the pork we raise and eat, but what is exported we must inspect, especially if we wish to send it to Germany. Another factor is the rat infesting slaughter houses and piggeries, and spreading the disease in swine. They are carnivorous and eat infected pork, and at their death are eaten by the swine. In Saxony, of 704 rats examined, 8.3 per cent. were trichinous. Swine eat pork also and may be infected so.

Much work has been done scientifically

on trichinosis which has not fallen into the hands of the general man, and what I have tried to give you are facts and some hypotheses about a simple disease, but one to practitioners and students that seems shrouded in difficulty and mystery.

SALVARSAN GIVEN PER RECTUM

In children, the intravenous injection of salvarsan may be very difficult since the veins are small or invisible and since the patients often cannot be kept sufficiently quiet for the operation. Salvarsan, given per rectum, is not absorbed with sufficient rapidity to be recommended for the syphilis of adults, where an energetic treatment is in place. It is, however, an excellent method of treating the less virulent syphilis hereditaria tarda or non-syphilitic affections, such as chorea minor, anemia and afebrile tuberculosis. The dose employed by Weill, Morel and Mouriquand is 0.1 to 0.4 Gm. The salvarsan is placed in a bottle with about 50 glass pearls and 40 Cc. of distilled water and is shaken until completely dissolved. Fifteen drops of a 15 per cent. solution are then added. This concentrated solution is then diluted with 100 Cc. $\frac{1}{2}$ per cent. salt solution and 5 to 10 drops of laudanum are added. The injection should be given as high up into the rectum as possible and should be retained at least 4 hours.—Lyon medical, 27, 1912.

ILLUMINATING-GAS POISONING

Morris Fishbein of Chicago discusses the effect of formaldehyde on tests for carbon monoxide in the blood. This subject is interesting from a medicolegal standpoint on account of the use of formaldehyde in embalming. Preparations of blood from a body examined post mortem after formaldehyde embalming—of normal blood, of normal blood containing formaldehyde solution, of normal blood through which illuminating gas had bubbled for fifteen minutes, of normal blood plus formaldehyde through which illuminating gas had bubbled for fifteen minutes and of blood from bodies of unembalmed persons believed to have been poisoned by gas—were studied by spectroscopy and subjected to various chemical tests. Formaldehyde was found to modify, in some way, all of these tests. It was also demonstrated that carbon monoxide remained in the blood for five days after removal from the gas, and one case is reported in which it was found seven days after. This is interesting in view of the general opinion that carbon monoxide loses its characteristics when exposed to air.—Jour. A. M. A., March 8, 1913.

Progress in Materia Medica and Therapeutics

THERAPEUTIC ACTION OF METALS UPON CARCINOMA

The very interesting and important observation has been made by H. R. Gaylord that the addition of small amounts of metallic salts to the water in which fish are kept will have a markedly inhibitory effect upon the growth of malignant tumors. Decided results were thus obtained with mercury bichloride in a concentration of one part to 4 million of water and with arsenic pentoxide 1:300,000. Iodine and tetrabromcreosol are also very effective. An action is apparent after one to two days and in some cases, the tumor had disappeared entirely after 30 days. Microscopically, there were found hemorrhages and necroses and, particularly in case of the thyroid, a rapid return to the normal structure. From these observations it is of course impossible to obtain any suggestions as to the treatment of tumors in man but the fact remains that the salts of the more poisonous metals undoubtedly have a restraining influence upon the growth of malignant tissues.—Berl. klin. Woch., Oct. 21, 1912.

SODIUM CACODYLATE IN THE TREATMENT OF SYPHILIS AND ECZEMA

F. R. Harrison, of E. Liverpool, O., reports three cases of syphilis and three cases of eczema treated with sodium cacodylate.

The first case of syphilis had undergone a course of mercury protoiodide and potassium iodide. The case presented a primary infection, with an occasional sore throat and a persistent breaking out of dry patches on the scrotum which resisted all local treatment. The patient was later given muscular injections of mercury bichloride without results. Sodium cacodylate was then injected every third day and all symptoms cleared up in about a week. Nine injections in all were made.

The second case was of syphilis of twenty months' standing. Patient received ordinary general syphilitic treatment, with no evidence of a recurrence of the disease until she became pregnant and miscarried at eight months, the child showing all evidences of syphilitic infection. The patient did not receive syphilitic treatment until she again became pregnant, when at the end of four months she showed an ulcerated condition of the larynx and fauces with several ulcerative skin spots as symptoms

of the beginning of the tertiary stage. Three weeks after being placed on sodium cacodylate all evidence of lues had disappeared.

In the third case of syphilis reported by the author 14 injections were necessary.

Excellent results were also obtained in three cases of eczema. Not only were the skin conditions benefited but there was great improvement noted in the general condition and weight of the patients. The results have been so striking in the few cases in which he has tried it that the author urges that the treatment be given a thorough trial.—American Practitioner, April, 1913.

THYROID TREATMENT OF DUPUYTREN'S CONTRACTION

At a meeting of the Académie de Médecine of Paris, a new method of treating Dupuytren's contraction of the palmar fascia was described by M. Gilbert. It consists in the administration of thyroid extract, which he has used in seven cases with favorable results in five cases.

In March, 1911, a locksmith was seen for bilateral contraction of the palmar fascia which began eight years before in the left hand and five years before in the right. In the right hand there were hard bands, and the third and fourth fingers were flexed on the palm. A similar condition was present in the left hand, but the bands were not so hard or prominent. After the administration of nine doses of grn. jss of thyroid extract the right third and fourth fingers could be stretched, and after the administration of 39 doses the hand had regained all its power. The treatment was discontinued for three months, and there was then a tendency to retrogression. On resuming the treatment rapid improvement took place. After taking 163 doses all stiffness had disappeared. In May, 1912, the patient was working ten hours daily, and his hands were no longer stiff after work, and the indurated tissue was softening. In June (after taking 216 doses) the tissue was quite supple. In the other four cases a similar result was obtained. The indurated tissues became softened and the function of the hands was regained. In the two cases in which the treatment failed the retraction was very marked and the treatment was continued only for a short time. These results point to a thyroid origin

of contraction of the palmar fascia. This view is borne out by the existence in these cases of other symptoms of thyroid deficiency—subacute "rheumatism," pains, headache, alopecia and edema, which were also improved by the treatment. In connection with this view of the pathogenesis of Dupuytren's contraction, it is interesting that M. Amat has described the case of a soldier whom he cured with iodine. It is also interesting that a similar beneficial action on other scleroses has been attributed to thyroid extract in some forms of scleroderma and chronic rheumatism.—*Lancet*, April 12, 1913.

TREATMENT OF IMPETIGO

H. Triboulet refers to the fact that the use of ordinary protective dressings is frequently a source of trouble in infants, as the little patients are rendered nervous thereby and prevented from sleeping. Furthermore, frequent changing is necessary if the dressings are to be kept clean, and this is difficult if the lesions are widespread. The following preparation is both effectual and convenient, in that no covering dressing is required:

Fuch sine (medicinal).....	grn. xv
Alcoholis Absol.....	5iiss
Phenolis.....	grn. lxxv
Aquæ Dest.....	5iiss
M. ft. solutio.	

In treating the skin lesions, the superficial friable part of the crusts is first removed by means of compresses soaked in a zinc sulphate solution:

Zinci Sulphatis.....	grn. xv
Aquæ Dest.....	5vii
Fiat solutio.	

Each projecting crust is then individually soaked by direct pressure of cotton, with the fuch sine solution. The surrounding healthy skin should not be touched. Upon allowing the solution to dry on thoroughly, a red glossy covering is formed which is impervious to air. Daily applications are made, and in eight, six or even three days the crusts will be observed to shrivel markedly almost disappearing. When the last vestige has fallen off, the underlying lesion will heal under the fuch sine in twenty-four hours.

This measure may be used with similar success in ecthyma, in the presence of somewhat confluent and deep seated crusts in varicella, in infected patches of pemphigus, and in various pyogenic skin infections, e. g., those accompanying nasal or aural suppurative processes.—*N. Y. Med. Jour.*, April 26, 1913.

IODINE IN TREATMENT OF TYPHOID

Lortat and Jacob have demonstrated the action of iodine in the production of a leucocytosis accompanied by a relative mononucleosis. On the basis of this work Arnozan and Carles have investigated the value of the internal administration of iodine in typhoid fever. The authors made their tests in a series of forty-four cases. The drug was administered in daily doses of 15 to 25 minims in wine of cinchona or milk. The results of the treatment were most gratifying. Marked improvement was noted in many patients who suffered from profuse diarrhea, distension and nausea and who had previously shown no improvement under other forms of treatment. It is to be noted, however, that the treatment did not seem to prevent complications. Best results were obtained where it was begun early.—*Semaine med.*, Dec. 4, 1912.

VERONAL IN SEASICKNESS

The comparative effect of veronal and veronal-sodium in seasickness and nervous disturbances was studied by Frank. Both drugs were given in doses of 0.5 to 1.5 Gm. The patients frequently refused to take the sodium salt since the taste was so disagreeable that it directly induced vomiting. In these cases no trouble was experienced when the drug was given as powder in a wafer. In all cases the effect of veronal was superior to that of the sodium salt; thus 0.5 Gm. to 1 Gm. veronal usually had a more quieting influence than 1.5 to 2 Gm. veronal sodium. The latter sometimes induces sleep more promptly than veronal but the nights were generally interrupted. In favor of the sodium salt it may be said, however, that there was less sleepiness and depression on the following day. With both drugs there was no deleterious influence upon the pulse, respiration or appetite, and albumin never appeared in the urine. The nervous disturbances, including trigeminal neuralgia, were promptly relieved. Even patients with periostitis could sleep, though in sciatica the effect was less pronounced. Hysteria proved particularly amenable, especially astasia-abasia. In seasickness, the retching and nausea were controlled so that food could again be taken. In the majority of cases the patients were not told the name of the drug. In nervous conditions and severe pains the author preferred veronal but where there is a tendency to become accustomed to the drug veronal-sodium should be prescribed instead, since its cumulative effect is less marked.—*Klin. therap. Woch.*, No. 38, 1912.

PEDICULOSIS CAPITIS

For the extermination of pediculi, especially in little girls, A. Whitfield recommends the following treatment:

The patient is placed on her back on a bed with the head hanging over the edge so that the hair will rest in a basin containing a solution of three drams of phenol in a pint of water. The solution is poured through the hair and caught in the basin until the hair is thorough saturated. Special attention should be paid to the hair over the ears and at the nape of the neck. The treatment is continued for ten minutes and then the hair is allowed to drain, but must not be dried or even thoroughly wrung out. A thick towel or a large piece of flannel is then wrapped about the head to form a turban. After an hour the hair may be washed in plain water or simply allowed to dry. The phenol being volatile soon disappears. The author states that this treatment does not injure the hair and that it kills the ovum as well as the pediculus.—*Lancet*, Dec. 14, 1912.

TREATMENT OF VINCENT'S ANGINA

C. L. Sutter of Rochester, N. Y., writes that the treatment of ulceromembranous angina is very simple, but must be thorough to be effective. The necrotic material or pseudomembrane should first be removed by swabbing the ulceration with hydrogen peroxide, full strength or diluted half, until the ulcer is clean. Then either a 10 per cent. solution of copper sulphate followed by a saturated solution of potassium chlorate or tincture of iodine should be applied directly to the ulcer. Iodine is probably the best local agent for destroying the bacteria and at the same time promoting healing of the ulceration. The drugs recorded as used by different authors are: Silver nitrate, subacetate of copper, chromic acid, carbolic acid, argyrol, iron and glycerine, methylene-blue, zinc sulphocarbolate and local application of salvarsan. The galvano cautery and chemical cauterizing agents have been used without much success. An astringent cleansing mouth wash is indicated. Potassium chlorate should be used either locally or internally. Most relief from the pain in swallowing will be obtained from the use of orthoform in powder or tablet form. General tonic treatment is indicated only in multiple stomatitis and in the recurrent forms. To prevent infecting others, drinking and eating utensils should be sterilized and kept separate. Sputum and mouth discharges should be burned. Following the attack, local disease

of the mouth, teeth and tonsils should be attended to, but operative work had best be postponed until making sure, by the microscope, of the absence of specific bacteria. Removal of the tartar from the teeth and oral hygiene are important as preventives.—*Med. Record*, March 8, 1913.

TREATMENT OF GONORRHEA

In combination with local treatment, O. Nitze, of Berlin, has used santyl with good results in the treatment of acute and chronic gonorrhea. He reports also that he has used the drug in non-gonorrheic affections, from simple bladder disturbance to cystitis of a marked degree. The author describes two cases in detail, the first that of a woman who had suffered for a decade with leucorrhea, menstrual disturbance and trouble in urination, and the second case, a woman 50 years old, who had an inveterate vaginitis, endometritis and pronounced cystitis. In the second case the urine contained pus and had a disagreeable odor. Irrigation of the bladder with a solution of potassium permanganate seemed to have very little effect. Under santyl the acute bladder symptoms disappeared in a short time and the urine became clear.—*Therap. d. Gegenwart*, 1912, No. 8.

REPORT ON LUMINAL

Luminal is a new hypnotic belonging to the urea group and is closely related to veronal. It may be had in the form of tablets containing 0.1 Gm. and 0.3 Gm. and as powder; it has a slight bitter taste but is generally not objectional to the patient. R. Nocti writes that in order to hasten absorption, it is best to instruct the patient to take the drug with hot tea. The sodium salt presents no advantages, except that it can be given hypodermically; its taste is too bitter for general use by mouth. Per rectum it is best given in the same dose as per mouth either in a 2 per cent. solution or as a suppository. The solution for subcutaneous use should be 20 per cent. It may be boiled for two minutes before use and generally keeps for about 14 days. Luminal does not act in the same way in all individuals hence it is best always to begin with small doses, especially if the patient is not robust. If a small dose is ineffectual, larger doses may be employed the following night. The average dose in simple insomnia is 0.2 Gm. to 0.3 Gm. in conditions of excitement 0.4 Gm. to 0.5 Gm., and in mania 0.5 Gm. to 0.7 Gm. Some authors have seen good results from 0.1 Gm., par-

ticularly in tuberculosis, and even 0.05 Gm. has been reported as effectual in certain cases. If sleep does not set in after 0.1 Gm., this dose may be repeated after one to two hours. As a rule, it is best to repeat small doses rather than to give large doses at once. In patients with reduced vitality large doses should be avoided and in the chronic bronchitis of the aged, the tendency to hypostatic pneumonia may be increased. In some cases it is necessary to keep patients in a stuporous condition for days; here repeated small doses should be used or the patient may take one large dose, followed by smaller ones. While a single dose of 0.5 Gm. will usually do no harm, it is best to first test the patient for his tolerance toward the drug and in many instances more can be accomplished by repeating smaller doses. Large doses such as 0.6 Gm. repeated may, however, be followed by disagreeable after-effects. If the drug must be given over a long period, it is therefore best to intermit every four to five days for two days and to instruct the patient to drink large amounts of water so as to aid the excretion of the drug.

The sodium salt contains only about 90 per cent. luminal, hence is not quite as potent. In certain cases of excitement luminal does not act with sufficient promptness hence it has been combined with morphine or hyoscine. The doses generally recommended are luminal 0.3 to 0.6 gm.; hyoscine, 0.0005 to 0.001 gm.; morphine, 0.005 to 0.02 Gm. The two solutions should not be injected the same time. Sleep does not set in as promptly after the subcutaneous injection of luminal sodium as after the administration of luminal.

The author writes that as a rule a sedative effect is noticed in 15 minutes and the patients will be asleep in one hour, no matter whether the dose has been small or large. The duration and the intensity of the sleep depend, however, upon the size of the dose. The average duration of the sleep is 6 to 8 hours. Though it may be interrupted by noises, there usually is little trouble in falling asleep again. Most patients feel very much refreshed when they wake up. In most cases there is an effect also on the following night. A cumulative effect and the necessity of increasing the dose observed only where it has been imperative to give large doses to secure a result. The sedative effect of the drug is seen particularly in alcoholic delirium and doses of 0.2 to 0.4 Gm. repeated, if necessary, may be more effective than morphine plus hyoscine or veronal. The delirium could even be aborted by 0.6 Gm. Smaller

doses are required in the unrest of old age or arteriosclerosis. The severe psychic suffering of patients afflicted with melancholia who outwardly seem perfectly quiet is also relieved to a remarkable degree. The so distressing conditions of fear are also very amenable to this form of treatment. In genuine epilepsy, some authors have ordered daily doses of 0.15 Gm. to 0.3 Gm. for months with the best results and without after-effects. Other conditions in which luminal has done good service are chorea, Huntingdon's chorea, paralysis agitans.

It seems that luminal also has pronounced analgesic properties for it has recently been used successfully in the severe pains of tabes and spinal tumors and in the pains of rheumatism, arteriosclerosis, gout, heart disease, multiple sclerosis, etc. It therefore seems probable that it may yet be destined to play an important rôle in the treatment of the morphine habit. The proper procedure here would be to keep the patient in a sleepy condition for several days when the symptoms of withdrawal are apt to be most intense. Small doses, given repeatedly, even for a long time, generally cause no after-effects; after large doses there may be a stuporous state, rarely fever with an eruption suggesting measles or scarlet fever. No disagreeable symptoms on part of the heart, kidneys or other internal organs have been described. The subcutaneous injection of the sodium salt has in rare cases caused infiltrations and even gangrene of the skin but it is likely that there was a special idiosyncrasy against the drug in these patients.—Reichs Med. Anzeiger, Jan. 31, 1913.

INTRAVENOUS PARALDEHYDE ANESTHESIA

Recent experiments have shown that paraldehyde given intravenously gives excellent anesthetic effects. It is stated that the patient passes into a perfectly natural sleep, respiration deepens, the pulse gets slower, and the color remains absolutely unaltered. Paraldehyde is a respiratory and cardiac stimulant, and is remarkably free from disagreeable after effects. There is a momentary depressant effect, but this transient influence can be overcome by dilution with an equal quantity of ether. Mix 5 to 15 Cc. of paraldehyde with the same amount of ether, and dissolve the mixture in 150 Cc. of cold 1 per cent. solution of sodium chloride in sterile distilled water, free from dead bacteria. The solution should be perfectly clear after shaking. It may be used cold or not exceeding 25° C. Introduce slowly into the veins the same

as salvarsan, at the rate of 5 to 10 Cc. of the solution per minute. The following phenomena are noted: In five seconds the patient tastes paraldehyde; in ten seconds it can be detected in the breath; in twenty seconds a sensation of general warmth, with dizziness or a sense of floating, is felt; in thirty seconds consciousness begins to disappear; in forty seconds unconsciousness is complete; in sixty seconds unconsciousness is deep; in ninety seconds there is no corneal reflex and anesthesia is complete. Up to this point 5 to 10 Cc. of the solution will have been administered. Elimination is carried on very rapidly through the lungs, and for a lasting effect the whole 150 Cc. of solution will have to be used. Recovery takes place in twenty minutes with no bad or after effects. Grave cardiac or pulmonary disease is said not to contraindicate it.—*Lancet-Clinic*, Jan., 1913.

TREATMENT OF MULTIPLE SCLEROSIS

A large number of drugs have been recommended for the treatment of multiple sclerosis yet until very recently the disease has been regarded as incurable. Though it is difficult to form an impartial opinion as to the action of any drug in a disease which runs with so pronounced remissions, yet M. Fraenkel has gained the distinct impression that fibrolysin often does a great deal of good. During the last four years 75 cases of multiple sclerosis were treated with this drug by the author, and of these 33 showed no improvement and 15 a decided improvement. The symptoms which were favorably affected were the gait, spasms, exaggerated reflexes, mystagmus, tremor, hypersthesia and paresthesia. In all these cases the general condition of the patients improved to a great extent. In the remaining 27 cases the improvement was still more marked and amounted in some of the patients to an actual cure. It is impossible as yet to say how permanent the cure is since many years must be allowed to elapse before a definite opinion can be given. In two of the most improved cases there was a relapse but injections of fibrolysin again promptly removed the symptoms. The treatment is very simple and not dangerous and a slight rise of temperature, due to anaphylaxis was seen in only a few instances. The injections could always be continued as long as necessary. One course of treatment usually consisted of one injection of 2.3 Cc. every third to fourth day into the nates for six weeks. Baths, massage, gymnastics and electricity will assist the action of the drug.—*Neurolog. Centralblatt*, 1913, No. 1.

EFFECT OF THE OPIUM ALKALOIDS

E. S. Faust has experimented with opium alkaloids in various combinations and finds that all the active principles are not necessary to produce the typical opium effect. The only indispensable ingredient is morphine. The combination of morphine with the other alkaloids does not reduce but rather enhances the narcotic effect of morphine upon the sensory centers in the cerebrum. The paralytic effect of morphine upon the respiratory center can be combated by the synchronous, stimulating effect of other alkaloids, notably by thebaine, which in this respect acts like strychnine. The opposite holds true for the vomiting center, which is stimulated by morphine and depressed by the other alkaloids. It seems that narcotine, narceine and papaverine either alone or in combination have no effect upon the tonus of the stomach.—*Muench. med. Woch.*, Nov. 12, 1912.

TO MAKE CASTOR OIL PALATABLE

The following excellent advice was given in the *Journal of the A. M. A.* in answer to an inquiry as to how to make castor oil less distasteful to children:

Castor oil is disagreeable to some persons largely because of its oily character, to others because of the disagreeable taste peculiar to it. When the stomach rejects castor oil it is often because of the taste left in the mouth, or because of the psychic impression which attends the taking of the dose. The simplest method of taking castor oil is to take some steps to prevent the oil from coating the mouth and then to swallow it quickly. Simple methods for this purpose are as follows:

Prepare two warmed cups, one about half full and one about one-quarter full of a hot liquid, such as milk or coffee, and place the dose of oil on the surface of the smaller portion. Wet the mouth with the liquid from the half cup and then quickly drink all the contents of the other cup, finally drinking more from the first cup. Heating the mouth in this way prevents the oil from clinging to it except very slightly, and that little is promptly washed off. Care should be taken, of course, by sampling in advance, to see that the fluid is about as hot as can be drunk quickly and yet not hot enough to burn.

A more simple method can be used if it will suffice. Heat the oil and administer the dose in a tablespoon heated by being dipped in hot water. Then rinse the mouth with hot water, hot milk or other liquid.

There are more complicated methods, including the giving of castor oil in effec-

vescent drinks at soda fountains, the oil floating between the foam and the watery liquid, or it may be prescribed in the form of an emulsion. Such an emulsion is official in the National Formulary as "Emulsum Olei Ricini." The composition of this preparation is as follows:

Castor Oil	5i
Acacia in fine powder.....	5ii
Tincture of Vanilla.....	℥xl
Syrup (U. S. P.).....	5vi
Water	ad 5iiiiss

The other source of unpalatableness is the disagreeable taste peculiar to castor oil. This is overcome by the use of saccharin (benzosulphinidum, U. S. P.), vanillin, aromatic oils, etc. The following formulas may be used:

Compound Tincture of Cardamom....	5ii
Cinnamon Water	5vi
Castor Oil	5i
Brandy	℥v

Mix the first two ingredients in a glass, carefully add the oil and drop the brandy on the surface of the oil. This mixture is for immediate use.

Other formulas are:

Saccharin	gr. i
Oil of Cinnamon.....	℥ii
Vanillin	grn. ii
Alcohol	5i
Castor Oil	5iii

Dissolve the oil of cinnamon, saccharin and vanillin in the alcohol, add the castor oil and mix thoroughly.

Castor Oil	5i
Glycerin	5i
Peppermint Oil	℥ii

PERHYDROL FOR THE PREVENTION OF PERITONITIS

The treatment of the peritoneum after an operation where contact with septic material could not be avoided has always been a difficult matter. Thus, after operations for appendicitis abscess, pus tubes or infected tumors or where there is an injury to the intestines, the patient is in grave danger of peritonitis, unless special precautions are resorted to. The two preparations which have been employed most extensively by Otto v. Herff are camphor oil 1 per cent. and perhydrol. The former is applied to the peritoneum in amounts of 20 to 50 Cc., which are absolutely harmless. The flatulency and the vomiting are considerably diminished but in severe infections there was hardly any influence upon the disease. It is certain, however, that the camphor oil never does any harm. Perhydrol was employed either as such or diluted with twice the amount of water. Perhydrol was

used most extensively after abdominal hysterectomy. After removal of the uterus and proper drainage through the vagina, the edges of the peritoneum were fixed with clamps and the cavity then treated with 20 to 30 Cc. of the preparation. The foam is removed and another 10 Cc. is applied. Only about a dozen cases have been treated in this way so far but the results have been very encouraging. It is not likely that the application of perhydrol will favor the formation of adhesions. In one case where the patient died as a result of embolism, the autopsy showed no signs of adhesions.—*Gynecologische Rundschau*, 1913, No. 1.

TREATMENT OF CORNEAL ULCER

C. A. E. Lesage of Dixon, Ill., writes that in the treatment of corneal ulcers a search for a foreign body, such as coal dust, chips of steel, emery dust, etc., should be made. There may be a displaced cilia scratching the cornea, the palpebral conjunctiva may be roughened, in some paralyzes the lids may fail to close properly and permit injury to the cornea. In this latter instance a protective pad should be used. A suppurating tear sac should receive attention. Eye shades, smoked glasses or some form of eye pads are, as a rule, superior to bandages, except where the cornea has perforated or threatens to do so. A copious discharge, however, is a contra-indication of the use of a bandage.

Small abrasions of the cornea simply require the use of some mild antiseptic, as a 4 per cent. boric acid solution, and will usually heal over in a short time.

For cleansing the eye many antiseptic washes have been used, but it is not so much the antiseptic used which furnishes results as the thoroughness with which the cleansing is done. A freely discharging eye would require more frequent attention than one with a scanty discharge; the former might require irrigation every hour to keep it clean; as a general rule, cleansing every three hours will suffice. Strong antiseptics are objectionable; either hydrarg. bichlorid (1-10,000) or a 3 per cent. solution of boric acid forms a most efficient eye wash. After cleansing the eye, a solution of atropin sulphate is instilled.

Atropin sulphate is almost indispensable in the treatment of corneal ulcers; one drop of a 1 per cent. solution is dropped into the eye every three or four hours to keep the pupil dilated; it acts favorably by preventing or breaking up posterior synechia; in some cases it is used oftener at first, and at times even the pure crystal

is used by the surgeon. After dropping in the atropin, carefully wipe off the lids to prevent an absorption of any excess of the drug which may cause poisoning in susceptible cases. In cases with glaucoma or total posterior synechia the use of atropin is contraindicated. In cases with increased tension or threatened rupture we may alternate the use of atropin with eserine sulphate, $\frac{1}{2}$ grain to 1 grain to the ounce, continuing the use of the former as the tension lowers. Some surgeons favor the use of eserine in marginal ulcers with threatened perforation as being less likely to produce anterior synechia.

Another valuable adjunct is dionin; it has decided analgesic and curative properties in corneal ulcers; it seems to hasten repair by opening up the lymph spaces in the cornea, permitting a freer flow of lymph to the parts; in the later stages it assists in clearing up the cornea; it can be used in the form of solution or ointment, 5 to 10 per cent.; some surgeons employ the drug in powdered form. The ointment will be found a convenient form of administration: it produces a chemosis of the conjunctiva at times alarming to the patient, but it is this very reaction that is beneficial; it is used at first two or three times daily, depending on the reaction produced, and later, as repair progresses, the interval of application is lengthened. In the severer forms of ulcers apply hot applications: cloths wrung out in hot water and frequently changed, are applied to the eye for 20 minutes to one-half hour, every two or three hours.—*Ill. Med. Jour. per Amer. Med.*, Dec., 1912.

TREATMENT OF ANURIA

An interesting case of complete anuria lasting eight days in a young man with previous good health, except for an occasional polyuria at varying intervals is reported by F. J. Sheahan, of Delhi, Ont. The condition seemed to give but little discomfort at first, the patient complained only of the suppression of urine and headache, but general anasarca developed after several days and vomiting occurred, twitching of the muscles, and headache became pronounced and continuous. The cystoscopic examination showed normal condition of the bladder and a catheter was passed easily into the pelvis of both kidneys, showing no obstruction. It was evidently a case of complete cessation of renal function. After the general anasarca developed, diuretic treatment having failed with salines, and pilocarpine having previously failed, he was

given a mixture of apocynum 5 grains, iris versicolor one-half grain, hyoscyamus four grains, every three hours. Exactly eight days from the beginning of the attack the kidneys began to functionate very freely and improvement was progressive thereafter. The cause of the trouble is very obscure and Sheahan doubts hysteria, which is not favored by the patient and the history and character of the case. He asks, is it a condition developing as a complication of an occasional polyuria from which the patient had previously suffered or is it a forerunner of diabetes insipidus and produced by a toxemia existing in the early manifestations of the disease. Sheahan says, "I think it was clearly demonstrated that the kidneys resumed their functions as the result of a powerful renal stimulant. The problem is, what was the cause of this condition? The question is an open one."—*Jour. A. M. A.*, March 15, 1913.

CALCIUM GELATIN INJECTIONS

The salts of lime have been very warmly recommended in hemorrhage, hemorrhagic diathesis, in exudative skin diseases, hay fever, bronchial asthma, rickets, osteomalacia and tetany. One great disadvantage has always been the impossibility of injecting the salts subcutaneously because abscesses and necroses invariably followed. A. Mueller and P. Saxl found that when the calcium was injected dissolved in Merck's gelatin solution no necrotic action occurred, and the beneficial effects of the gelatin, which in itself is a marked hemostatic, were also noted. The solution recommended contains 5 per cent. calcium chloride and 10 per cent. gelatin and the dose is 5 to 10 Cc. Before injecting, the vial is placed for 10 minutes in boiling water and is then allowed to cool. Experimentally the pronounced hemostatic effect of the solution could be demonstrated on animals and the formation of exudates was also checked to a marked degree. As a rule, the intramuscular injection is to be preferred. The patients usually experience some pain for 10 to 12 hours after the injection but on the following day, the site is generally painless and there is seldom any infiltration. The injections did excellent service in severe rheumatic hemorrhagic diathesis, in chronic bleeding from an ulcer of the duodenum, in gastric hemorrhage, in severe pleuritis, in Basedow's disease and severe bronchial asthma. Where emphysema and marked bronchitis were present in the latter condition, the effect was less marked.—*Therap. Monatshefte*, Nov., 1912.

IODIPIN IN PROSTATITIS

Prostatitis is a common and very disagreeable complication of gonorrhea which may delay the cure for many weeks. The methods commonly employed for treating this condition are prostatic massage, hot rectal irrigations and the insertion of suppositories containing ichthyol and potassium iodide. Massage frequently does more harm than good, particularly if practiced before the third week; the suppositories not rarely give rise to tenesmus. The patient may also find it very difficult if not impossible to resort to the irrigations. L. Fischel has obtained a much better therapeutic effect from iodipin applied in the form of a rectal injection, both in recent and in old cases where considerable infiltrations were found in the gland. As a rule 10 Cc. of a mixture of one part of iodipin 25 per cent. and two parts olive oil are injected into the rectum every day, or, in mild cases, every second day. An improvement will be noticed within a week; the gland diminishes in size and the second portion of urine begins to clear. As a rule the prostatitis is cured in two to three weeks or else small nodules remain which can easily be dissipated by massage or hot irrigations. According to the author only very few cases resist this treatment.—Muench. med. Woch., March 25, 1913.

POISONING WITH PARALDEHYDE

Paraldehyde is a relatively harmless drug which has been given in large doses (50 to 150 Gm.) without causing any severe symptoms. It can thus be understood that but few cases of poisoning have been described in literature. A patient of Fornaci and Quarelli suffered severely from insomnia and had employed all the customary hypnotics in rather large doses. As soon as tolerance was established a change was necessary, and finally paraldehyde was resorted to. In the course of five years 12 to 15 Gm. daily were taken of this drug.

Psychic disturbances finally appeared, and during the last week the patient considerably increased the dose and consumed as much as 500 Gm. For eight days the patient was in an acute delirium, with suicidal tendencies and marked motor excitement closely resembling that of alcoholic delirium tremens, except that there was a slight difference in the hallucinations of sight. The delirium reached its acme in the first four days. During the first two days the breath smelled very strongly of the drug. The temperature was high, the pulse weak and rapid and the perspiration

very profuse. During the psycho-motor stage a severe epileptic attack set in. Improvement began with the fifth day and rapidly progressed so that the patient was physically and psychically normal again by the ninth day. The treatment consisted of lukewarm packs, small doses of paraldehyde and large doses of bromide, but little improvement was seen until opium was resorted to. Recovery was complete, except that the insomnia persisted.—Berl. Klin., Woch., Dec. 23, 1912.

LITHIUM POISONING

A case of poisoning by lithium in his own person after taking a total of 125 grains in twenty-eight hours is reported by S. A. Cleveland, of Cleveland. In the first experiment 2 Gm. were taken in a glass of water after each meal for three meals and then, after skipping one meal, another 2 Gm. dose was taken. Slight dizziness and fullness in the head was felt three or four hours after the first dose, and nothing after the second dose, which was taken in the evening. Soon after the third dose there was much blurring of the vision and dizziness, and after the fourth dose, taken at night, the dizziness became so marked that the room seemed to go around at night and sleep was impossible. "The next morning the condition approached prostration. The eye symptoms were exaggerated and the dizziness, weakness and tremors were so intense that there was staggering and it was necessary to go to bed. The eye and ear symptoms lasted about a day and a half after the last dose. The weakness and tremors persisted for five days. At no time were there any gastro-intestinal symptoms—there was no abdominal pain, diarrhea or gastric irritation, and the appetite was very good throughout the whole time." Several months later the experiment was repeated to make sure that the effects were due to lithium. Only two 3 Gm. doses were needed to bring on the dizziness and blurring of the vision. The general symptoms were less marked than before, but there was some weakness for a day or two. Again there were no gastro-intestinal symptoms, which, according to the literature of lithium poisoning as quoted by Good, are characteristic. The striking cinchonism effects observed in these experiments do not appear to be noticed by previous reporters. The two or three times larger doses, however, used by Cleveland are mentioned in this connection, and apparently as possibly accounting for these effects.—Jour. A. M. A., March 8, 1913.

Prescriptions

Chordee:

Ext. Opiigrn. vj
 Ext. Hyoscyamigrn. iij
 Olei Theobromæq. s.
 M. Div. in suppos. No. xij.
 Sig.: One suppository at bed time. Repeat in three hours if necessary.

—Swan.

Laryngismus Stridulus:

Potassii Bromidi3ij
 Chloralis Hydratægrn. xxxij
 Syr. Aurantii Cort.f. 3j
 Aquæ Menth.f. 3j
 M. Sig.: One teaspoonful every half hour.

—Hughes.

Impetigo:

Fuchsini (medicinal)grn. xv
 Alcoholis Abs.3iss
 Phenolisgrn. lxxv
 Aquæ Dest.3iijss

Seborrhea:

Euresolgrn. x
 Olei Ricini3ij
 Tinct. Canthar.3j
 Spt. Lavandulæ
 Spt. Rosmarini.aa ad 3j
 M. Sig.: Hair wash.—G. N. Meachen.

Scrophulosis:

Olei Morrhuæf. 3vj
 Glycerinif. 3ij
 Olei Menth. Pip.
 Olei Cinnamomi.aa gtt. ij
 M. Sig.: One or two tablespoonfuls three times a day.

Diabetes:

G. Rankin has obtained good results with the following combination:
 Extr. Valerianæ
 Phenolisāā grn. ij
 Codeinægrn. ½-j
 Extr. Rhamni Pursh.grn. jss

Anorexia:

Tinct. Amaræ (Ph. G. iv)30 Cc.
 Tinct. Nucis Vomice.10 Cc.
 M. Sig.: Twenty drops t. i. d. before meals.
 Tinct. Cinchonæ
 Tinct. Aurantii Cort.aa 10 Cc.
 M. Sig.: Ten to twenty drops t. i. d. before meals.

Mentholis
 Tinct. Amaræ
 Tinct. Nucis Vomice.āā 5 Cc.
 Tinct. Cinchonæ20 Cc.
 M. Sig.: Ten to fifteen drops one hour before meals.

Alopecia:

Pilocarpinæ Hydrochloridi.grn. v
 Olei Rosmarinigtt. viii
 Tinct. Cantharidis.f. 3ss
 Glycerinif. 3i
 Ol. Ricinif. 3i
 Spt. Camphoræf. 3iiss
 To be used twice daily.

National Insurance Prescriptions.

The following prescriptions published in the "Prescriber" for May, 1913, have been prepared for use under the new national insurance law in England:

Scabies:

Sulphuris Sublim.3j
 Bals. Peruvianæ3ij
 Paraffini Mollis3iij
 M. Sig.: Apply after washing.

Nasal Catarrh:

Mentholisgrn. v
 Camphorægrn. xx
 Olei Eucalyptoli℥xv
 Paraff. Mollis3j
 M. f. ung. Sig.: Apply to nasal passages.

Neuralgia:

Camphoræ
 Chloralis Hydratæāā 3iv
 M. Sig.: To be painted over painful part.

Pediculi Capitis:

Acidi Carbolicci3ij
 Aquæad 3x
 M. Sig.: Apply freely to hair and allow to dry.

Pruritus:

Acidi Carbolicci3j
 Glycerini3ij
 Liq. Carbonis Deterg.3ss
 Aquæad 3vii
 M.

Psoriasis:

Acidi Chrysophanici.grn. v
 Liq. Carbonis Detergens.℥xv
 Hydrarg. Ammoniatæ.grn. x
 Adipis Benzoinatæ3j
 M. Sig.: Nocte maneque applic.

Cough:

Liq. Morphine Acetatis.3j
 Acidi Acetici Dil.℥xx
 Syr. Tolutani3iv
 Aquæ Camphoræad 3iv
 M. Sig.: Tablespoonful if necessary in violent cough. (For an adult.)

Bromidrosis:

Acidi Salicylici Pulv.grn. xv
 Acidi Borici Pulv.3ij
 Amyli Pulv.3vj
 M. Sig.: Dusting powder.

Insomnia:

Paraldehydi3j
 Syr. Aurantii3jss
 Infus. Senegæ3iij
 Aquæad 3j
 M. Ft. emuls. For one dose, to be taken at bed-time.

Inflamed Joints:

Acidi Salicylici3ij
 Olei Ricini3j
 Spt. Rectificati3j
 M. Sig.: Apply with cotton wool and cover with oiled silk.

Lumbago:

Salicinigrn. xv
 Potassii Bicarbonatisgrn. xv
 Caffeinæ Citratægrn. vj
 M. Ft. pulv. tales xij.
 Sig.: One powder four times daily.

MERCK'S ARCHIVES

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FOR THE GENERAL PRACTITIONER

PRESENTING A

REVIEW OF THERAPEUTIC PROGRESS

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MAY, 1913

EDITOR'S NOTES

Recent Investigations on the Causation of Cancer

The cause of malignant tumors continues to be the most alluring problem before the medical profession. Laboratory work on this important problem has been much facilitated by the discovery of the transplantability of new growths into animals of the same species, yet despite thousands of animals that have been sacrificed here and abroad it is as yet impossible to say whether new growths arise as a result of a developmental defect or are the outcome of abnormal intrinsic or extrinsic factors. The parasitic theory was once very popular, then went out of fashion for want of convincing proof. From recent, painstaking work and careful observation, both on plants and animals, it seems likely, however, that parasites may play an important rôle in the development of neoplasms. Whether these observations can be utilized in the study of human tumors remains, of course, an open question; thus, there are many prominent pathologists who even refuse to believe that the spontaneous tumors found in animals are in any way related to tumors occurring in man. Every new observation must, however, be cherished carefully for it may be destined to form an important link in a chain of evidence which may yet solve this problem.

A strong support for the parasitic theory of cancer has come from the Bureau of Plant Industry of the U. S. Department

of Agriculture (National Geographical Magazine, Jan., 1913). For some nine years past, Dr. E. F. Smith has been conducting a series of investigations into the origin and histology of the crown gall, a plant disease which causes an enormous annual loss to farmers. It was soon found that these growths were not due to insect injury or to fungus growths. Microscopically, the excrescences were found to consist of closely packed and rapidly proliferating cells with distinct nuclei. They form distinct cell strands and grow into and eventually destroy the healthy neighboring tissues. Secondary tumors, closely resembling the primary ones in structure, often develop from the cell strands at some distance from the primary tumors, so that a great resemblance to the structure and growth of tumors in animals exists, as far as it is possible to speak of resemblance in tissues differing so widely in anatomy and function. The most important point, however, is that Dr. Smith has succeeded, after years of study, in isolating a germ (the bacterium *tumefaciens*) which undoubtedly is responsible for these growths. The bacterium could be obtained in culture and inoculation of healthy plants almost invariably led to the formation of a tumor of the character described. The relation between host and parasite in this disease may be regarded as symbiosis in which the bacterium has the advantage.

Dr. Smith very properly does not believe that the bacterium discovered by him has anything to do with human cancer; yet his observations are of the greatest interest as they show undoubtedly that microorganisms are capable of producing tumorlike structures. The pathology of plants being so radically different from those of animals, it is impossible, however, to say if the process is not more inflammatory than neoplastic in character.

A more important study, from the standpoint of the human pathologist, is that of Peyton Rous and James B. Murphy (*Berl. klin. Woch.*, April 7, 1913). Both authors have carefully studied the chicken sarcoma, a spindle-celled growth which undoubtedly belongs to the malignant neoplasms both as far as its structure and its manifestations on the living animal are concerned. By preparing an extract of the tumor by macerating in Ringer's solution and then filtering through a Berkefeld cylinder, a fluid could be obtained which if injected into animals of the same species frequently gave rise to the same kind of tumor at the site of injection. All peculiarities of the original growth are preserved and metastases

may in time appear. The new tumor may also be transplanted to other chickens. The comminuted sarcoma was also dried carefully over sulphuric acid for weeks and even months and if then injected in the form of an emulsion, was capable of producing new tumors. Similarly, treatment with glycerin did not destroy the transplantability, though the tumors were smaller and grew more slowly after a longer period of incubation. All these properties make it appear more than likely that the cause of chicken sarcoma is a microorganism, but unfortunately, all attempts to see it under the microscope have been unsuccessful. It seems to belong to the larger of the filterable organisms since it does not pass through a Chamberland filter. No cultures could be obtained but it was found that the germ will survive repeated freezing and thawing and that it will be rendered inactive by a temperature slightly higher than that necessary to destroy the tumor cells. It is also rendered inactive by autolysis and by chloroform and toluol in the proportions usually used to check bacterial growth and by 2 per cent. carbolic acid and 50 per cent. alcohol. It is also destroyed by high dilutions of saponin and bile, like animal organisms, in contrast to the vegetable. It seems that only a very slight degree of immunity is established in animals that recover and it is also almost impossible to create an artificial immunity by treating normal animals with dried tumor tissue. Another important fact is that the filtrate, supposedly containing the germ, usually does not act upon normal connective tissue. Thus, if some filtrate is injected into normal connective tissue with a very fine needle, a tumor will only rarely develop, while if some irritating substance is injected with the filtrate, which will stimulate the connective tissue to proliferation, a growth is the rule. It seems to the authors that the germs cause a neoplastic change in but few cells at first and that these cells will then continue to proliferate and form the tumor independently of any further specific action of the germ. This would also explain why these tumors are not infectious in the usual sense of the word. More recently, the authors have also succeeded in transmitting osteochondrosarcoma occurring in chicken by means of the filtrate of the tumor.

Another important addition to our knowledge of the etiology of neoplasms is contributed by Dr. Johannes Fibiger, professor of pathology at the University of Copenhagen (Berl. klin. Woch., Feb. 17, 1913). This author describes in detail an endemic disease affecting the crop and

esophagus of the rat (*Mus decumanus*) and has discovered that it is directly caused by a nematode of the genus *spiroptera*, which burrows in the pavement epithelium of the organs mentioned. The intermediary host in the development of this nematode is the cockroach (*Periplaneta americana* and *orientalis*). The disease was first discovered accidentally but could be experimentally transmitted to the rats of the laboratory by feeding them with the infected roaches. In the initial stage, there is a pronounced epithelial hyperplasia and inflammation; later, papillomatous growths appear and may reach such a stage of development that they fill up the entire cavity. This papillomatous change was often found to be the precursor of true malignant epithelial hyperplasia with infiltrative growth of the epithelium. This malignant change appears rather slowly and many of the animals experimentally infected were lost by intercurrent diseases before sufficient time had elapsed. In at least two of the experimentally infected animals metastases could be detected in other organs. A careful search failed to disclose the presence of parasites or parasitic eggs in any of the metastatic nodules. It is thus proven beyond doubt that the epithelial cell, when once rendered malignant, is able to continue its existence as tumor cell without further stimulus. The toxic products elaborated by the invading nematode seem to contain the original stimulus which has changed the epithelial cell into a malignant structure.

It would be extremely interesting if the author would continue his experiments with the toxic products of the nematode directly. Whether nematodes or any of the other lower animal organisms play any rôle in human pathology is doubtful. There are, however, cases on record where an intimate association between chronic trichinosis and carcinoma seems probable. Fibiger's experiments are, however, of the greatest interest since he is the first one to artificially induce carcinoma with metastases in healthy animals.

* * *

A SUBCUTICULAR WHITLOW is often the superficial expression of a deep infection. After removing the raised epidermis carefully inspect the tissue beneath for a small opening. If this is neglected the process may speedily advance to the tendon sheath.—*Amer. Jour. Surg.*

WHEN DEALING WITH A SLIDING HERNIA don't attempt to separate the large bowel from the sac; this attachment carries the blood supply of the gut. Free the sac, not the intestine, and reduce with the bowel as much of the sac as is attached to it.—*Amer. Jour. Surg.*

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Familial Dextrocardia.—While cases of congenital dextrocardia, either alone or as part of a general situs inversus viscerum are reported from time to time, cases showing a family tendency have apparently not been hitherto reported. S. Neuhoof, of New York, reports two cases observed in a brother and sister. No such condition existed in the parents, as far as is known, or in the one living brother. In the girl, who died from tuberculosis some years ago, the hospital report reads, "Heart situated on the right side, liver on the left." In the male the same conditions exist, the apex of the heart being located in the fifth intercostal space on the right side. The liver is situated on the left the spleen on the right. The man is a hard worker and suffers from no circulatory disturbances. Electrocardiographs are given of this case, which correspond with those of congenital dextrocardia. Another sister has very marked cardiac enlargement following endocarditis.—*Jour. A. M. A.*, April 5, 1913.

Rabies.—M. B. Wesson, of El Paso, Texas calls attention to an early symptom of rabies observed by him in animals and man which has received very little notice in literature. This is a left hemiplegia, starting in the hinder leg in the lower animals and simulating Landry's paralysis. He has observed this in over two hundred rabbits inoculated with rabies, as well as in a number of animals infected otherwise. He also had the opportunity to observe a fatal case in man in which this symptom of lower left hemiplegia occurred. It has been noticed in man, the hog, the dog, the guinea-pig and the rabbit; in all of the quadrupeds the initial paralysis was in the left hind leg and in the man the left leg and it gradually developed into a left hemiplegia which later became general. He concludes that in an animal that has suddenly become extremely nervous and irritable the development of a weakness in the left hind leg without apparent cause warrants a tentative diagnosis of rabies.—*Jour. A. M. A.*, April 5, 1913.

Vital Coloration and Chemotherapy.—Goldman writes that a true vital stain must remain in the tissues for a long time; it must not be too toxic; it must be able to penetrate into the cell interior. Substances which come up to these standards are trypan blue, isamin blue, and pynol blue. Vital stains are of two classes, one of which acts rapidly, the other slowly. Trypan blue belongs to the former, for it stains tissues in vivo within three hours. Isamin blue belongs to the second class. The more dilute the solution and the slower the absorption, the more marked is the histological picture. The distribution of the vital staining is highly suggestive. In a pregnant animal it is notably in evidence about the animal's dugs. But if an animal which is vitally stained conceives, then the external tissues become decolorized and the staining matter appears in the placenta. Further, if a disease focus is set up in a vitally stained animal it attracts the staining principle. What is the

meaning of this displacement? The internal organs which naturally attract the stain are the kidneys. This we associate with an attempt at excretion. No other organ with excretory outlet tends to store up the coloring matter. The ductless glands take up the latter in a manner not haphazard, but characteristic for each. A complete survey of the tinctorial qualities of the various tissues appears to show that the cells which stain are essentially migratory, histogenetic, and phagocytic, and their tinctorial property is the result of a peculiar chemotactic sensitiveness. We can therefore comprehend why the breasts of the gravid animal and the placenta attract the coloring matter because cells of this type naturally abound in such organs which also tend to store up glycogen and fat. The embryo is not stained, so that one may also regard the storing up of the stain by the placenta as protective. In the presence of the new physiological and pathological aspects of vital staining the pharmacological significance must recede for the time being. The latter is chiefly concerned with the utilization of the vital stain as a vehicle for some specific substance able to destroy pathogenic cells, bacteria, etc.—*Med. Record*, Oct. 5, 1912.

Steam Sterilization.—M. Rubner, of Berlin, Germany, discusses the theory of disinfection and its history and methods. Up to the seventies of the last century dry heat for clothing and similar articles and chlorin and sulphurous acid for rooms were the most used methods. The modern doctrine of disinfection, based on the peculiarities of the infectious agents, did not arise until the eighties, when Koch and his assistants pointed out the difference between the disinfection of spores and that against vegetative forms. His idea was to kill all infectious agents and that is what is still expected, though we know that pathogenic germs rarely form spores. It was shown that steam is an excellent disinfecting agent and it was at first used empirically. We have since learned the difference between saturated and superheated steam and that the latter has the same influence as dry air. Rubner holds that two things must be considered in steam disinfection: first, the action from a physical and chemical point of view; and second, its action on the infectious agents, and he considers each separately. It is important to note that the beneficial influence of steam disinfection is exercised only on objects with large open pores and the power by which it enters is the difference between the specific gravity of the steam and that of the air in the pores of the materials to be disinfected. This is why the steam should be introduced into the apparatus from the top and the steam and air escape at the bottom, but this explanation is not quite sufficient, there may be some parts where the resistance is too great for it to penetrate, and articles should not be too tightly packed when subjected to the heating. The action on the microbes takes place first by coagulation of the protein and the amount of water and salt contained in the organism aids the coagulation. It is the lesser amount of these quantities in the spores that makes them more resistant. Steam at 100 C. exercises a chemical destructive action also, and the greater the saturation of the steam, the greater is its destructive power on the germs. He speaks more fully on these points. The dis-

covery of formaldehyde meant a great step in advance for the doctrine of steam disinfection, and Rubner gives an account of his experiments with steam formaldehyde disinfection. By it even the most delicate objects are not injured and the process has been developed to an extent that large apparatuses have been made in which whole ambulances can be disinfected and it is possible to construct one large enough to disinfect whole railway cars. Not only the vegetative forms of microbes but all living germs are killed. It would be a great advance, he thinks, in railway hygiene if much used cars, especially sleeping cars, could be disinfected now and then. The trouble is little and even the most luxuriously furnished car is not injured. He thinks it is certain that progress will be made in this direction.—*Jour. A. M. A.*, May 3, 1913.

Poliomyelitis.—M. Neustaedter of New York after noticing Roemer's observation of paralysis in guinea-pigs, transmissible, and microscopically and otherwise similar to poliomyelitis in man, which had not been confirmed by investigators, reports his own experiments. He placed a cage containing a monkey with poliomyelitis inside of another containing guinea-pigs and two days later found two guinea-pigs similarly paralyzed, which died the same night. There were no microorganisms. Other guinea-pigs were inoculated with an emulsion from the cord or smears from the nasal mucosa of one of these dead guinea-pigs and died within seven days. The post-mortem findings are described and included marked hemorrhages and degeneration in the anterior horns of the cord with other lesions. Without venturing to draw definite conclusions from these few experiments, he thinks he is warranted in agreeing with Roemer that the first dead guinea-pig became infected through the virus of the infected monkey mixed with the dust of the cage, and that the infection took place through the nasal mucosa. He also says that these monkeys had not been previously experimented with, and that their antecedents have been traced to the farm from which they came.—*Jour. A. M. A.*, March 29, 1913.

The Treatment of Diabetes.—Herman Strauss, of Berlin, Germany, says that the carbohydrate treatment of diabetes is not new. There was a time when it was considered necessary to replace the sugar lost in diabetic patients and the milk treatment has been employed for fifty years or more. The carbohydrate treatment means the use of one sort of carbohydrate, excluding other sorts, with the idea of diminishing glycosuria and strengthening tolerance. He reviews the various methods and speaks especially of the importance of the oatmeal treatment which he concludes, from his own studies and those of others, does not act by any special property of oatmeal different from the properties of other flours. Under the same conditions of a diet without meat and with only a small amount of albumin, wheat flour does equally well. These requisites and computation of the calories are of great importance in the carbohydrate treatment of diabetes. In the reduction of the quantity of albumin he does not go as far as Blum, and for long periods of treatment he recommends not less than from fifty to sixty grams. A study of the different degrees of tolerance of the different carbohydrates is also advisable. A certain

quantity of carbohydrates agrees with the diabetic the more slowly it is absorbed. In grave cases he recommends inulin, especially for those with acidosis. It is clear, Strauss says, that a carbohydrate treatment can be used only periodically and then only in grave cases, the lighter cases being treated on the old and tried principles. The later researches have shown that among grave cases there are those which are sensitive to albumin, and in these at least the old method of giving unmeasured quantities of albumin is wrong. It is of special importance, he thinks, that we have learned that in grave cases meat endangers the tolerance. It has also been proved that a certain scarcity of calories is useful; twenty-five calories per kilogram is sufficient for many diabetics. Hence Rolisch's advice to use the vegetable diet in grave cases which afford these conditions in the diet is worth considering. Another point is that the carbohydrates of plants are slowly absorbed, thus favoring tolerance, and it may be that the intestinal flora is also favorably affected. It must be noted, however, that not every form of vegetable diet is suitable; it must be poor in carbohydrates and rich in fats, and those carbohydrates must be preferred for which the patient has the greatest tolerance. That is, of which can he take the greatest amount without secreting a great quantity of sugar. This complicates the dietetic treatment of the diabetic, but it makes it more successful than it used to be.—*Jour. A. M. A.*, May 10, 1913.

The Criminal Physique.—R. Sleyster, of Waupun, Wis., gives a preliminary survey of the physical examination of 1,521 convicts in the Wisconsin State Prison. He alludes to the generally accepted opinion as to the physical inferiority of criminals and in accordance with this belief he finds the Wisconsin convict to be one and eight-tenths inches below the average American stature. He is well nourished and weighs the same as the average American citizen of the same age and height and his chest measurement is fair. Murderers and thieves he finds to be below the average in weight; the swindlers outweigh all others; and the sexual offenders are older than many of the other classes and shorter than any excepting the recidivists or habitual offenders. This last class is strikingly the most inferior of the chronic criminals. These men of an average age of 33 years lack 2.1 inches of the height of the average Wisconsin boy just out of high school and 2.5 of the stature of the average American. While well nourished, they are markedly deficient in chest and expansion measurements. They also show the highest percentage of degenerate stigmata; such as deformed palates and ears, facial and cranial asymmetry, etc. An interesting table is given of pulse, temperature and respiration. The murderers only show a normal pulse, but they also show subnormal temperature which is a phenomenon Sleyster is unable to explain. He frankly admits the difficulties of an accurate comparison between prisoners and those outside, only a minority of criminals get into prison and the average population contains quite a large proportion of future criminals and those that can be called normal only by courtesy. It is, however, the best he could do under present conditions and a comparison of the strictly normal and the purely criminal would in all probability emphasize the facts of the physical inferiority of the latter.—*Jour. A. M. A.*, May 3, 1913.

Book Notes

NAPOLEON'S CAMPAIGN IN RUSSIA, Anno. 1812. Medico-Historical. By Dr. A. Rose. Illustrated. This book is a highly interesting, graphic description of the most dramatic episode in all history—Napoleon's invasion of Russia. The author presents the medical side of this ill-fated expedition, giving splendid miniature pictures of the horrors of the march, as well as the terrible experiences and vicissitudes of the sick and wounded. The enormous matter is mastered with great discretion, though without neglecting any point of importance. Aside from the many points of medical interest and the valuable lessons it teaches, the narrative with its chain of anecdotes has a fascinating and absorbing interest that compels a complete reading at one sitting. The illustrations are excellent. We commend the book to our readers. (Published by Dr. A. Rose, New York. Price \$1.50. 1913.)

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., assisted by L. F. Appleman, M.D. Vol. I. March, 1913.—Interesting and timely articles in the chapter on the "Surgery of the Head, Neck and Thorax," by C. H. Frazier, are on the hypophysis, trigeminal neuralgia, epilepsy, meningitis, fracture of base of skull, wounds of the heart, diaphragmatic hernia and cancer of the mouth. The progress made in the study of the infectious diseases, including acute rheumatism, croupous pneumonia and influenza is ably discussed by J. Ruhräh. Under the title "Diseases of Children," F. M. Crandall discusses asphyxia neonatorum, hemorrhage, icterus, ophthalmia, pyelitis, achondroplasia, foods and many other topics of great interest to the general practitioner as well as the pediatrician. "Rhinitis and Laryngology" is discussed by G. B. Wood and "Otology" by A. B. Duell. (Lea & Febiger, Philadelphia and New York. Price, paper, \$6.00 per annum.)

HOW TO COLLECT A DOCTOR BILL. By Frank P. Davis, M. D. A compact little work, giving a general discussion on the collection of debts, hints as to the proper time to present bills, letters and forms, etc. The main body of the book is taken up with data concerning the exemption laws of the various states. (Physicians' Drug News Co., Newark, N. J. 93 pages. Price \$1.00. 1913.)

WAYSIDE EXPERIENCES. A Collection of Plain Tales as Heard Along the Road. By C. Elton Blanchard, M. D., author of "The Letters of Dr. Betterman," "Medical Dollars and Sense," etc. A collection of short stories on topics that are usually taboo. While presented in language that is frank and plain, there is nothing that is lewd or that could shock. Incidentally the author is a capital story teller, as well as a teacher of morals. His characters are real men and women and they act and talk like real men and women, not like puppets. The work is marked throughout with a sincerity and reality that holds the reader's confidence and interest. (Physicians' Drug News Co., Newark, N. J. 246 pages. Price \$1.25.)

DIE ERMÜDUNG DER STIMME (Phonasthenia). Von Dr. R. Imhofer, Prag. mit zwei Notenbeilagen.—Most physicians, especially those in metropolitan districts, are occasionally confronted with a problem with which very little help is to be gotten from the text-books. We refer to trouble with the voice. It so happens, too, that the patient is usually one who is dependent on his voice for his livelihood—actors, teachers, clergymen, public speakers, singers, etc. This work of Dr. Imhofer is the most complete and practical we have seen. (A. Stuber's Verlag, Würzburg, Germany. Price, M. 5. 1913.)

DIE SCHÖNHEITSPFLEGE FÜR ÄRZTE UND GEBILDETE LAIEN. Dargestellt von Dr. Orlowski, Dritte verbesserte Auflage mit 30 Abbildungen im Text.—A compact little work on the care of the skin, hair, nails, etc. Practical information is also given on the treatment of such affections as warts and acne; the choice of soaps, massage, cosmetics, etc. (A. Stuber's Verlag, Würzburg, Germany. Price, M. 2.50. 1913.)

KRANKHEITZEICHEN UND IHRE AUSLEGUNG. Von James Mackenzie, M.D., LL.D., Autorisierte Übersetzung aus dem englischen von E. Müller. Zweite Auflage.—This authorized translation of Mackenzie's well-known work on "Symptoms and Their Interpretation" shows the work of the careful scholar in its preparation. The translation appears to be very accurate and the style is lucid. The work is printed in a large and very clear type that makes reading a pleasure. (A. Stuber's Verlag, Würzburg. Price, M. 5. 1913.)

Pamphlets Received

Würzburger Abhandlungen aus dem Gesamtgebiet der praktischen Medizin, XIII Band. Supplement-Heft "Sammelreferat über Alypin," von Professor Seifert. (A. Stuber's Verlag, Würzburg. 1913. Price, M. .85.)

The Lilly Scientific Bulletin, Series 1, No. 2. "The Improvement of Medicinal Plants," "The Relative Strength of Fresh and Old Samples of the Fluid Extract of Ergot," "Experiments With the Cat Method for Testing Digitalis and Its Allies."

Annual Report of the Toronto General Hospital for the year ending September, 1912.

Annual Report of the Directors of the American Telephone and Telegraph Co., 1913.

Exophthalmic Goiter and Perverved Thyroid Secretion, and Their Treatment With High Frequency Electricity, by W. G. Lewi, M.D., of Albany, N. Y. Reprinted from Albany Med. Annals, February, 1913.

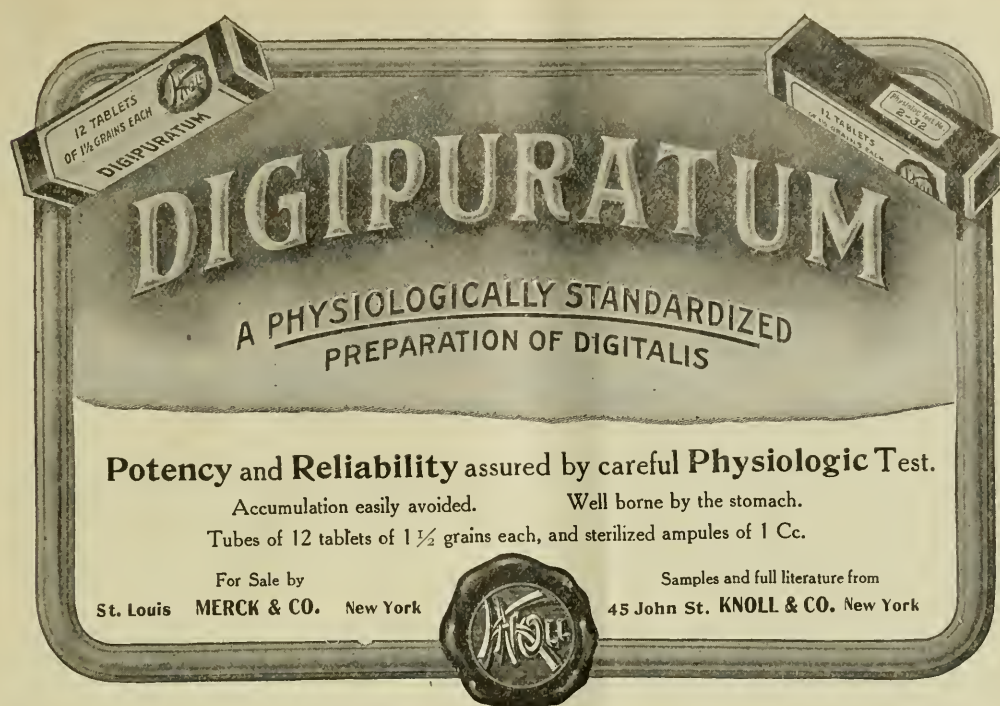
Melted Ice vs. Bottled Spring or Distilled Water for Drinking. An address by S. N. Watson, of Dixon, Ill.

Stream Pollution and Sanitation of Natural Ice. An address by G. C. Whipple, C.E.

Factors of Sanitary Safety in a Natural Ice Supply. An address by C. E. A. Winslow.

Non-Relation of Natural Ice to Typhoid Fever and Dysentery. An address by Dr. Hibbert Hill, of Minneapolis, Minn.

The Bacteriology of Ice. An address by Edwin O. Jordan, Ph.D. Published by the Natural Ice Association of America, 116 Nassau St., New York.



DIGIPURATUM

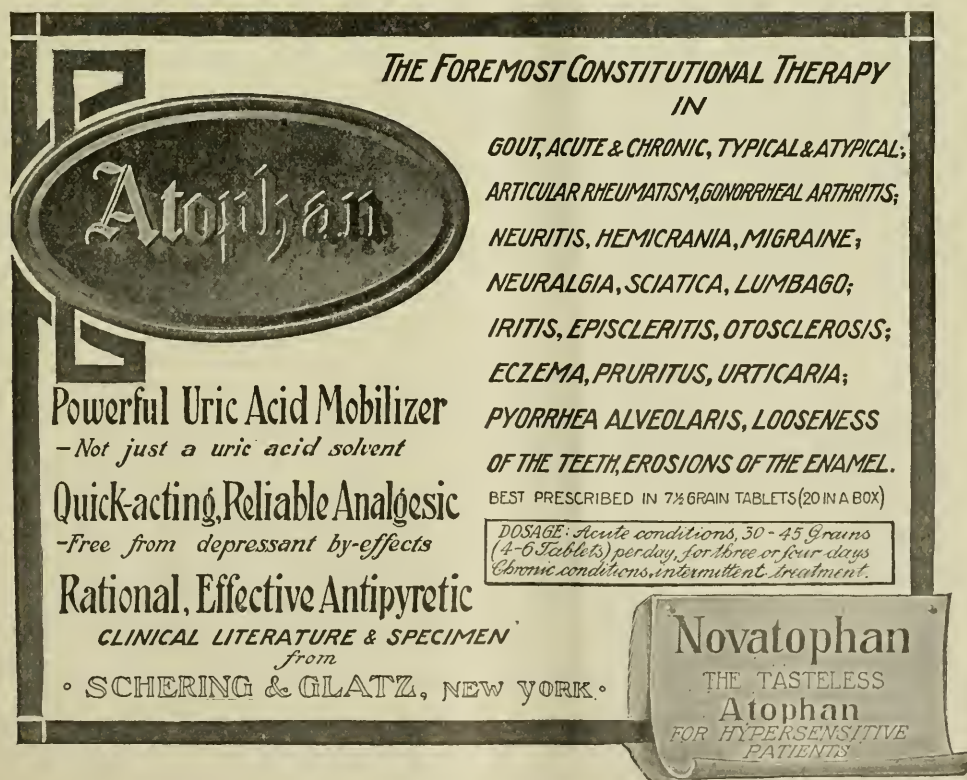
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AN IRISHMAN'S FORESIGHT.—Pat and Mike were working on a new building. Pat was laying brick and Mike was carrying the hod. Mike had just come up to the fourth floor when the dinner whistle blew. "I hate to walk down after it," he said.

"Take hold of the rope," said Pat, "and I'll let you down." Pat let him down half way and let go of the rope. Mike landed in a mortar bed, not much hurt but terribly mortified.

"And why did you let go of the rope?" he demanded.

"I thought it was going to break," said Pat, "and I had priseness of mind enough to let go."—*St. Louis Post-Dispatch.*

"KUR" AND "CURE."—Many newspapers are hasty or careless in announcing the discovery in Germany of some method of treatment more or less new, and not infrequently misinformation is given the public through failure to keep in mind the actual meaning of one little word. The German word *Kur* does not mean "cure," although it is not an uncommon thing to find it so translated into English. "To cure" in English means "to restore to health; to effect a cure"; but in other languages it means merely to apply "a method of remedial treatment of disease; medical or hygienic care; method of medical treatment." The German word for "restoration of health" is *Heilung*, not *Kur*. The Latin word *cura* means merely "care," a shade of meaning which is preserved in the derived term "curator." An Italian physician was recently made to say, when his articles was translated into English, "I cured ten typhoid patients last month and six of them died." What he really said was that he had treated ten patients.—*Jour. A. M. A.*

STATUS TO-DAY OF THE WORLD PLAGUES.—The United States through its Public Health Service, operating to a large extent through the consular service, keeps us in close touch with new outbreaks of cholera, bubonic plague, yellow fever, etc. These details, however, give us no perspective, and we remain in ignorance of the general movement of these maladies over extended periods of time.

It is therefore of interest to read what was said before a recent meeting of the Aertzliche Verein of Munich on the last-named aspect of epidemiology by G. Mayer. The latter gave in brief outline the movement of the great epidemic scourges from 1900 to 1912. Leprosy, prevailing freely in the tropics and subtropics, tends to appear in Italy, France (west coast) and the Riviera. Cholera has moved from India across the Persian Gulf to Mesopotamia, Syria, the Caspian Sea, Persia, the villages of the Volga, Don, Dnieper and Dniester rivers. It progresses

in Russian Poland, but has become arrested at the Russo-German and Russo-Austrian boundaries. In 1911 Russia was visited with especial severity from Mesopotamia and Syria, as were also Italy, Turkey and the Balkan States, and Hungary. The Italian vessels bore cholera to Tripoli and to many other Mediterranean ports.

During the same period the bubonic plague moved from India and China to East Australia, East Africa, South American ports, California. In 1911-12 it extended to North Africa, East Arabia, the Azores Islands, and notably into Brazil.

Typhus, almost confined to Russia and Mexico, has come to light in Spain, while yellow fever prevails in America from Mexico south, along certain routes (West Indies, South American coasts). It has been transported in some degree to North and East Africa. At last accounts it was strongest in Mexico, the West Indies and Chili.—*Med. Record.*

WHO BEGAN IT?—Mamie had been naughty and her mother finally had recourse to the time-honored remedy in such cases.

"Mamma," she sobbed, "did Gran'ma spank you when you was little?"

"Yes, dear," said her mother, "she did when I was naughty."

"And did her mother spank her?"

"Yes."

"An' was she spanked, too, when she was bad?"

"Yes."

"Well, who started this blamed thing, anyhow?"—*Ladies' Home Journal.*

CAN THE UNDELIVERED FETUS CRY?—There has recently been some discussion in French and Belgian medical papers about the nature of the vagitus uterinus. Is it the fetus or the uterus which causes the remarkable phenomenon occasionally heard before the fetus is delivered? Velpéau once said that even if he had heard them he would not believe in them; that is to say, he would not ascribe them to the fetus. Allard, on the other hand, has published an observation in the *Normandie Médicale* which leads him to believe that the vagitus is uttered by the fetus. Let it be remembered, however, that the forceps was used. It was a seventh labour in this instance, and on the three previous occasions the forceps had been applied, apparently on account of inertia. After a first attempt, which proved unsuccessful, he allowed the patient to rest before introducing the instrument once more. Suddenly he heard stifled cries, just like those of a new-born infant under the bedclothes, but the child was still undelivered. At the same time the nurse, who was holding the patient's leg, cried out, "*On voit bien qu'il s'ennuie, il pleure!*" and the mother drew herself up and exclaimed, "What's making that noise?" The husband, apparently a doctor himself, was present, and also heard the *vagitus*, which was repeated four or five times. The child's movements were vigorous. The forceps was again applied, but the child was born asphyxiated. It weighed over 11 pounds. Unfortunately there does not appear to have been any post-mortem examination. Sipel, about eight years ago, reported a case of his own in which he undertook a version. A pain occurred and he was obliged to stop his manoeuvres without withdrawing his arm. Immediately two high-pitched notes were heard, clearly arising within the patient's abdomen. They

precisely simulated the cries of an infant. But Sippel noted that at each cry air ran along his forearm engaged in turning, and he distinctly felt the vibrations of a fold of mucous membrane closely encircling his forearm. The current of air ran not from below, but from above downwards. The uterine contraction drove it out, and as it passed the slightly resistant fold the sound was produced. Possibly the vagitus uterinus may be explained in a similar way in most, if not all, other cases. There seems usually to be a flabby uterus on the one hand and an obstetrical operation admitting air into its cavity on the other.—Brit. Med. Jour.

THE HORSE WANTED TO BE SURE.—A traveler noticed that a farmer was having trouble with his horse. It would start, go slowly for a short distance, and then stop again. Thereupon the farmer would have great difficulty in getting it started. Finally the traveler approached and asked, solicitously: "Is your horse sick?"

"Not as I know of."

"Is he balky?"

"No. But he is so danged 'fraid I'll say whoa and he won't hear me that he stops every once in a while to listen."

MONGOLISM AND ANCESTRAL AFFINITIES.—Every busy pediatric clinic sees annually a large number of cases of mongolian idiocy. The characteristic physiognomy makes the diagnosis a simple one. Those who have had ample opportunities of studying these cases in insane asylums and in institutions for feeble-minded children have come to the conclusion that mongolism represents an arrest of development. C. Paget Lapage in his recent volume on "Feeble-mindedness in Children of School Age" notes that many of these cases are the result of an exhaustion of the reproductive powers of one or both parents. In the majority of instances the mongol is the last child in a large family. Shuttleworth has pointed out that many of the characteristic features of mongols indicate an unfinished state; the poorly developed ears, the lax ligaments, the muscular hypotonia, the tendency to congenital heart disease, and the maldevelopment of the brain, are all signs of an arrest of development.

There is another theory, however, which regards mongolian idiocy as an instance of atavism,

as a reversion to some primitive type of human structure. According to this view mongolism is of phylogenetic rather than of ontogenetic significance. F. G. Crookshank in a most interesting and scholarly thesis on this subject in the "Universal Medical Record," January, 1913, regards mongolism as a form of infantilism of phylogenetic origin. The marked cases of this condition are stamped with simian characteristics, while the less pronounced cases resemble closely individuals of mongolian extraction. There is considerable evidence that there is an infusion of Mongolian or of Mongol-Malayan blood in many of the nations of Europe. The Finns, the Laps, the Turks, the Magyars and the Basques are all of Mongolian origin. In the Celtic, Iberian, Melanochoic or Mediterranean type of European a peculiar greenish complexion suggests a Mongolian heritage. Mongolian idiocy is regarded as a recrudescence of the dormant Mongolian element transmitted from the remote past. Crookshank believes that the "link between both the ancestral and environmental conditions that determine the growth of the organism must be sought for in the polyglandular balance." Mongolism is always first manifested during thymic life and tends to disappear when the other ductless glands develop their full functional activity. It is pointed out that mongoloids often have thymic attacks, and that the administration of thymus gland given in combination with thyroid produces a beneficial effect in cases without marked mental weakness or gross bodily defect.—Med. Record.

THE LABORATORY DIAGNOSIS OF PATERNITY.—The "Red Back," i. e., The Texas Medical Journal, for last December contains an editorial discussion of an unusually interesting subject, namely, the diagnosis of paternity, which appears to have become possible through the experiments of Mayoral and Jiminez, reported in La Médecine Scientifique for February, 1912. Although these experiments do not produce final and definite results, it is readily to be seen that eventually they may be productive and that the possibility of establishing the paternity in a given case of pregnancy will be of the most far-reaching medicolegal importance.

Basing their experiments on the reaction of Elsberg in the early diagnosis of cancer, Mayoral and Jiminez sought to apply it for diagnosis in

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the first months of pregnancy and also for determining who is the father in any given case of pregnancy. If the principle of Elsberg's cancer reaction were applicable to pregnancy, red blood corpuscles of the father, emulsionized with an isotonic solution of sodium chloride, injected under the skin of a pregnant woman would produce an erythematous, somewhat painful spot at the site of injection within six hours.

The experiments of the two authors named are reported to have given the following somewhat astonishing results:

1. Three pregnant women, injected with emulsionized red corpuscles from their husbands, gave a positive Elsberg reaction.
2. One of these three women, injected with erythrocytes from her husband, and at the same time with those from a stranger, gave a positive reaction with the former and a negative one with the latter.
3. Thirteen pregnant women were injected with the emulsion from males with whom they had never cohabited, and twelve of them gave negative results, while in one the reaction was doubtful.
4. Corpuscles from two husbands gave positive reactions when injected into their respective pregnant wives, but negative results in three other pregnant women whom they had never known.
5. In five non-pregnant women who had previously borne children to their husbands there were negative results in four, and a doubtful reaction in one.

The editorial in question points out that the interest of these investigations would have been greatly accentuated if Mayoral and Jimenez had extended their inquiries to the children of the husbands whose blood induced positive reactions in their pregnant wives, and that the possibility of a practical value of their findings would have become correspondingly enhanced. Although the entire matter is still in its experimental stage and manifestly it is not as yet possible to draw any positive conclusions, these investigations are of decided interest and importance, and it is to be hoped that they will be carried on to some definite conclusion.—Amer. Jour. Clin. Med.

IN THE PALM, foreign bodies, by reason of the direction of the thrust, often point towards the dorsum and, in a general way, towards the center of the wrist, and such movements as they undergo by muscular contractions carry them further in those directions.—Amer. Jour. Surg.

TOO MUCH FOR THE ENGLISHMAN.—A professor from Iowa went to England last summer, and was introduced to a professor from one of the English universities. He welcomed the American, and said, "I met one of your colleagues last summer. We had another professor from Ohio here to visit us."

"But I am from Iowa."

"Iowa, indeed! How very interesting! I am sure the other gentleman called it Ohio."—Lippincott's.

CENTENARY OF THE "TOP HAT."—It is proposed to celebrate the centenary of the high hat, although this badge of male affluence, if not of respectability, seems to have existed before 1813. Made of beaver skin, plush or silk, high-crowned hats certainly existed before that year; but they rather approximated truncated cones than the cylindroid shape which has since obtained—as witness the shaggy, yellow "grandfather's hat," with the flaring bell crown, of the "Tippecanoe and Tyler too" period, the lofty stovepipe which Lincoln wore, and the tile of to-day, which no Presidential inauguration and no household can be without. For a century at least the high hat has been civilization's symbol of somber splendor; it has been the appendage of man's highest estates, in whatever sphere of existence. In London no gentleman of the stock exchange will venture across the street, however hot the August day, not thus bedecked. In Darkest Africa the jungle potentate will evidence his *savoir vivre* by receiving the explorer clad in a "stovepipe," though lacking every other adornment save a smile of greeting, and possibly also a loin cloth. By the high hat alone may all "exalted personages" be recognized; and in some instances, we regret to add, there is no other mark of identification. Who would to-day enter an equipage of state that is not driven by a coachman adorned with a "plug," no matter how old its vintage? The tile is ever reserved for occasions when it tops the utmost pulchritude of which man is capable; and great indeed is he who can wear it as gracefully and "as easily as a camel bears a Bedouin family, tent and furnishings and all, or a blithe little Sardinian donkey a load of grass"! A woman's crowning glory is her hair; a man's crowning glory is his tile. May not baldness, now so frequently observed in the human male, be concomitant with the vogue of the beaver hat? This structure fits tightly on the head. Is it not therefore possible that by compressing the blood

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vessels it leads to impoverishment of the scalp, which is the soil for hair to grow in? Neither hair nor plants (so our confrères in dermatology and botany assure us) will grow well if the soil be poor. A scalp favorable to hair growth is thick and pliable, and moves freely on the calvaria; a thin scalp drawn tightly over the skull will lessen the blood supply in the vessels and cause pressure atrophy in the hair roots. Will not the tightly pressing beaver (the derby, too, for that matter) have the same devitalizing and depilatory effect? Women and savages (the terms seem now interchangeable in London) are seldom or never bald; why should civilized man be so? Is the reason to be found in the stiff hat? It has been observed that "measles is a disease, baldness an affliction, but a man's side whiskers are his own fault." Is a man's baldness also his own fault?—Jour. A. M. A.

THE LESION CAUSED BY JUDICIAL HANGING.—It is an old saying that there are more ways of killing than by hanging, but perhaps it is not so well known that there are many different ways of killing by hanging. When a criminal is hanged he dies a practically instantaneous death, but his death may be brought about in a strange variety of ways. From the medico-legal point of view more attention has been paid to the results produced by the methods of the suicide than to the actual state of affairs which brings about the death of a man executed in the interests of justice. And yet, since hanging is the accepted English method of despatching the criminal, any evidence of the processes by which death is brought about cannot be unimportant. It must be admitted at once that the term "hanging" is not at all a good one to express the mode of death in a modern execution. Hanging suggests the passive suspension at the end of a rope, and seems to connote a throttling of the victim by the drawing tight of the noose. Suicides do literally hang themselves, and in olden days men were hanged when executed, death from apoplexy or asphyxia being caused by the constriction of the neck. But something more than this comes into play in a modern execution, for the jerk of the drop, and not the running taut of the noose, is the factor which in most cases brings about an instantaneous death. The criminal is not throttled to death, but a sudden jerk imparted to the base of his skull kills him with a surprising suddenness. Exactly what this jerk does depends on many things, such as the length of the drop and the position of the knot, and totally different results are found in different cases. At times no injury to the bones of the neck can be found after death, and in these cases it is probable that a general stretching of the ligaments has permitted a fatal injury to the cord without producing any bony lesion; it is even possible that some of the more subtle causes of death, which are seen in the suicide come into play. It has been thought that the odontoid process became torn from its ligaments, and so crushed the cord; it has even been said that some executioners could produce this result at will by giving a rotary motion to the falling body. Still, although this is a common belief concerning hanging (and certainly one case of damage to the odontoid is recorded), it is probably a somewhat rare accident for death to be brought about by injury of the cord due to a fractured or liberated odontoid process. Almost any degree of injury to the cervical region of the spine may be produced. The third cervical vertebra is the one most commonly fractured, but the extent of injury may

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range from a mere tearing of the ligaments, or a slight fracture of the bone, up to a complete severance of all the tissues of the neck. Complete decapitation has been produced by a drop of no more than nine feet. Apart altogether from this lesion of the cervical vertebrae a strange injury to the skull has been described, and it seems certain that an executed man may die as the result of extensive cranial injuries, while his cervical vertebrae remain intact. The anatomists engaged in the archaeological survey of Nubia had the opportunity of examining the bodies of over a hundred men, all of whom had been executed in Roman times, and some of whom still carried round their necks the ropes with which they were hanged. These men showed no lesion of their cervical vertebrae, but the sutures of their skulls were torn open in such a manner as to lead one to suppose that the knot, catching on the angle of the jaw, had tended to pull one temporal bone and the facial part of the skull bodily upwards from the occipital and the base of the skull.—Lancet.

THE SEXUAL IRRITATION OF PROSTATIC ENLARGEMENT.—Every urologist has, of course, observed the large number of old men with prostatic symptoms, exhibiting a warm feeling for young and good-looking members of the opposite sex—a feeling, in no few instances, extending quite beyond a healthy desire for proper female companionship. Thus, when an old man long past the meridian of life enters the ranks of the love lorn and begins to pay ardent court to a young girl just breaking into full virginal bloom, his conduct is held to be a species of mental aberration,

manifesting itself in a silly return to long forgotten habits. Again, in those frequent instances where aged men are arrested for indecent exhibition it is commonly the practice to seek a reason in an altered state of the hapless old man's mentality with no attempt toward looking for an actually existent lesion of a gross character, the irritation of which might give rise to such moral perverseness.

It must unquestionably be a fact that with a hypertrophied prostate there is a certain grade of irritation of the sexual centers tending to inflame the minds of these sufferers and to weaken judgment and moral control. When it is remembered what an important sexual organ the prostate is, what a vital role it plays in the male's most dominating impulse, it is little to be wondered at that serious sexual disturbances could be brought about by increase in the size of the prostate together with concomitant congestion and nerve irritation.

Therefore, in the future when we hear of one of our hitherto highly respected old friends in relentless pursuit of a charming young damsel, exhibiting the every manifestation of a lovesick young man, let us be lenient in our judgment of his actions, for it is not entirely unlikely that his peculiar frame of mind is but a token of an enlarged prostate.—Urologic and Cutaneous Review.

THE X-RAY IS INVALUABLE in the diagnosis of bone cortex and periosteal disease. In bone medulla infections it is of little service.—Amer. Jour. Surg.

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FATAL NICOTINE POISONING.—E. Ehrnrooth reports a fatal case of nicotine poisoning which is, he thinks, the first to be recorded in Finland. This is all the more strange as nicotine is easily extracted both from the green and the dried tobacco leaf. On the advice of a midwife in Helsingfors the mother of a 6-year-old girl gave her daughter an enema prepared from tobacco in order to expel worms. An infusion was made from 4 to 5 grams of green tobacco leaf in about one liter of water. Half of this was injected. The child soon became very restless a cold sweat broke out and death occurred within half an hour of the infection. The necropsy showed that there was no status lymphaticus to account for the sudden death. The bronchial glands were enlarged and caseous and the kidneys showed signs of slight inflammatory changes. There was extravasation of blood into the mucous membrane lining the pelvis of the kidneys. There were also extravasations of blood into the mucous lining of the stomach which was grey and swollen. The lining of the intestine particularly in the lower portion of the small and the upper portion of the large intestine was swollen and hyperemic. A yellowish-gray mucous fluid was found in the intestine suspended in which were numerous particles which consisted of tobacco leaf. Analysis of the contents of the large intestine showed the presence of nicotine. Given by the rectum nicotine appears to be rapidly absorbed for death has been known to follow in two to five minutes. How much nicotine was given in the author's case is not clear but as the enema did not contain the bulk of the leaves it is probable that only a fraction of the nicotine they originally contained was absorbed by the child. Nicotine is, however, so toxic, that 0.003 Gm. is sufficient to cause serious poisoning while 0.006 Gm. may be fatal. One cigar alone may contain enough nicotine to cause death, and it is surprising that such a toxic drug figures so rarely in the history of suicide and murder, yet there are some interesting records of the use, both of pure nicotine and of tobacco, for these purposes. The most famous trial in which nicotine played a prominent part was that of Count Bocarmé, who was convicted in 1850 of poisoning his brother-in-law, Gustaf Fougnyes. The trial is of historic interest, as it was the first in which a medico-legal analysis of a dead body revealed the presence of a vegetable poison. The *post-mortem* changes in cases of nicotine appear to vary considerably, and while some observers have detected a smell of tobacco on opening the body, others, including the author, have noticed no such phenomenon. The paths by which nicotine enters the body are numerous, and of these the skin is one of the most common. Smugglers have suffered from severe nicotine poisoning by secreting tobacco under their clothes next to their skin, and the application of wet tobacco compresses to cutaneous eruptions has also ended in disaster. Most curious of all is the case of a convict who had the ingenuity to smuggle tobacco into his cell by secreting it in his rectum, for which device he was punished by serious symptoms of nicotine poisoning.—Brit. Med. Jour.

A NEEDLE FRAGMENT IN THE FLESHY PALM, where the muscles are compact and in more or less constant activity, will be displaced more in a few hours than one in the sole of the foot, where the intrinsic muscles are deeper, less compactly disposed and less active, and where, also the dense plantar fascia sometimes holds the needle. —Amer. Jour. Surg.

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OBITUARY: DR. GUSTAV BJORKMAN. It is with sincere regret that we announce the death of Dr. Gustav Bjorkman, of Racine, Wis., whom many of our earlier subscribers will remember as a frequent contributor to our columns. Dr. Bjorkman passed away at his home on April 27. He was born at Stockholm, Sweden, in 1855, and after his preparatory education entered the Royal University at Upsala, where he took a classical course. He graduated from this institution of learning in 1879, and then entered the Royal Carolin Medical College in Stockholm, receiving his degree in 1887. He practiced a while in the province of Upland and later at Stockholm. In 1890 he came to New York, where he practiced a short time and then moved to Racine, Wis.

Dr. Bjorkman was an ardent student and made frequent contributions to medical literature. His work on "Diseases of the Throat" excited much favorable comment and was translated into French and German.

Dr. Bjorkman is survived by his widow, one son and a brother, Dr. Ernest Bjorkman, of La Crosse.

THE FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, and the first to be held in America, at Buffalo, August 25-30, according to an announcement of the executive committee, will be by far the most elaborate effort yet made in this country toward getting the problem of school hygiene before the world. The first International Congress was held at Nuremburg in 1904, and the second at London in 1907, the third at Paris in 1910.

The objects of the Buffalo Congress are:

- (1) To bring together men and women interested in the health of school children.
- (2) To organize a program of papers and discussions covering the field of school hygiene.
- (3) To assemble a school exhibit representing the best that is being done in school hygiene.
- (4) To secure a commercial exhibit of practical and educational value to school people.
- (5) To publish the proceedings of this Congress and distribute them to each member.

In addition there is a plan on foot to effect a permanent organization for the purpose of carrying out school hygiene reforms in all the individual communities in this country, if not all over the world.

One of the interesting features of the Congress will be the presence of delegates representing the community interest in school hygiene, including those appointed by mayors and governors, by women's clubs, by school boards, boards of health, by mothers' congresses and charity organization societies and boards of trade. Their help is being solicited with a view of organizing the community in a campaign of school hygiene reform.

The program committee announces a program of two hundred and fifty papers and fifteen symposiums, taking up hygiene from the following points of view:

I. The hygiene of school buildings, grounds, material and upkeep.

II. The hygiene of school administration and schedule.

III. Medical, hygienic and sanitary supervision in schools.

The contributors to the program make up a notable list of speakers, college presidents and professors; state, city and county commissioners of education; teachers and superintendents of public schools, medical college professors; state, county and city health officers; physicians in private practice, engineers and architects.

Special discussions are being arranged on the following subjects:

"School Feeding," arranged by the Committee on School Feeding of the American Home Economics Society; "Oral Hygiene," arranged by National Mouth Hygiene Association; "Sex Hygiene," arranged by the American Federation of Sex Hygiene; "Conservation of Vision in School Children," arranged by the Society for the Prevention of Blindness; "Health Supervision of University Students," arranged by Dr. Mazyck P. Ravenel, University of Wisconsin; "School Illumination," arranged by the Society of Illuminating Engineers; "Relation Between Physical Education and School Hygiene," arranged by the American Physical Education Association; "Tuberculosis Among School Children," arranged by the Society for the Prevention of Tuberculosis; "Physical Education and College Hygiene," arranged by the Society of Directors of Physical Education in Colleges; "The Binet-Simon Test," arranged by Professor Terman, Stanford University; "The Mentally Defective Child," arranged by Dr. Henry H. Goddard, Vineland, N. J.

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Various citizens' committees of Buffalo are arranging an elaborate entertainment for the benefit of visiting delegates. There will be receptions and a grand ball, a pageant of school children, and excursion trips to the great industrial plants of Buffalo, and to the scenic wonders of Niagara Falls. The Boy Scouts will act as official guides.

Delegates will attend from every college and university of note in this country, from other leading educational and hygienic institutions and organizations, and from every country in which an active interest is being shown in the welfare of school children, which includes all the leading nations of the world.

The Congress is open to all persons interested in school hygiene upon the payment of a fee of five dollars. Application of membership should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

President Wilson has accepted the honorary office of patron of the Congress. The president of the Congress is Mr. Charles W. Eliot, of Harvard University. The vice-presidents are Dr. William H. Welch, of Johns Hopkins University, and Dr. Henry P. Walcott, president of the recent International Congress on School Hygiene and Demography, and chairman of the Massachusetts State Board of Health.

CHILDREN'S AGENTS.—Work Done by County Employees for Dependents.—The work of the agent is of the most varied character—discovering the whereabouts of responsible relatives; locating deserting fathers, and occasionally prosecuting wilfully negligent ones; finding employment for the able-bodied; securing medical attention for the sick; providing situations where mothers can keep their babies with them; helping officials to place feeble-minded and other defectives in suitable State institutions; getting wayward boys and girls into reformatories; preventing the return of children from institutions to unsuitable homes, and endeavoring to help the boys and girls who come from homes of misfortune, poverty or vice to become self-supporting, self-respecting men and women.

State laws make the county officials, particularly the superintendents and overseers of the poor, responsible for the present care and future welfare of these children, as well as for their support. No superintendent of the poor can do

all that is required without help. The State Charities Aid Association's County Committees furnish the help required through efficient social workers who give their whole time to the work.

When an agency is organized the immediate result of the work is the returning to responsible relatives of a number of children; others are placed in foster homes. The county is thereby saved the expense of supporting such children for indefinite periods. By investigation, and particularly by preventive and constructive work within the families, many children are kept from becoming public charges.

How about your county—are its dependent children getting the kind of care that will make them efficient citizens, or are they getting the kind of care that tends to make them vicious or to continue them indefinitely as dependents?—S. C. A. A. News.

AMERICAN PROCTOLOGIC SOCIETY.—The fifteenth annual meeting of the American Proctologic Society will be held at the Hotel Radisson, Minneapolis, Minn., on June 16, 17. An interesting program including the reading of some twenty papers on proctologic subjects has been arranged. The following are the officers of the society: President, Louis J. Hirschman, M. D.; vice-president, Alois B. Graham, M. D.; secretary-treasurer, Lewis H. Adler, Jr., M. D.; executive council, John L. Jelks, M. D., Louis J. Hirschman, M. D., J. Rawson Pennington, M. D., and Lewis H. Adler, Jr., M. D.

THE GOOD OLD SUMMER TIME.—The coming summer season will no doubt produce its usual crop of cases for physicians, peculiar to the season.

Insect Bites, Bee Stings, Sunburn and its frequently following Dermatitis, Strains and Small Joint Injuries from baseball and other sports, Sprained Ankles, Ecchymosed Eyes, Infected Wounds, etc., will demand the first attention of the physician and a second thought will be a suitable remedy.

All inflammatory conditions, whether from infective or traumatic causes, rapidly subside when dressed with Antiphlogistine. Its convenience of application with the assurance of satisfactory therapeutic results, makes it almost indispensable in emergency work.—(Denver Chem. Mfg. Co.)

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THE POOR ORPHAN.—An old country woman stepped into a suburban drug store and laid on the counter a prescription for a mixture containing two decigrammes of morphia.

The druggist exercised the utmost care in weighing the dangerous drug.

"What a shame!" she cried. "Don't be so stingy; it's for an orphan girl."—April Lippincott's.

THE THERAPY OF NEUROTIC STATES.—The bromides have served no more useful purpose than in those unstable nervous states so frequently met with in women, and yet owing to this very instability their administration must be supervised with the greatest care if the patient is to be guarded from the disadvantages which accompany the use of these salts.

The fact that Bromidia (Battle) represents the therapeutic height of the bromides and is free from their disagreeable side-effects, has made this bromide preparation a great favorite in the treatment of female neuroses.

From it may be expected the full therapeutic effect of the bromides with the further advantage of freedom from the untoward effects of hastily prepared bromide mixtures.

Gastric intolerance is obviated by the extreme care exercised in choosing the contained drugs in Bromidia (Battle) and in compounding them. (Battle & Co., St. Louis.)

REPUTATION COUNTS.—The reputation of a pharmaceutical remedy must stand or fall by the therapeutic results it produces.

Medicinal remedies come and go, but one based upon logic and having proven its therapeutic efficiency, not merely by incidental reports, but by the incontrovertible evidence of prominent clinicians, covering a period of nearly half a century as to its uniformity of results rendered, will continue to live and grow in popularity. Such a product is Hayden's Viburnum Compound.

H. V. C. is of known composition. Its reliability of action in treating Gynecological and Obstetrical cases has standardized it as a dependable product, upon which confidence can be placed to produce the desired results.

In Congestive Dysmenorrhea and other forms of painful menstruation where no abnormal anatomical condition exists, it has proven of inestimable service, even since the time of Sims.

In Amenorrhea, Menorrhagia, Metrorrhagia, it is also of particular service. In Obstetrical

practice, where difficult labor is encountered due to a Rigid Os, its sedative and antispasmodic action makes it almost indispensable.

Hayden's Viburnum Compound contains no narcotic and can be given with an assurance that no dangerous after effects will be the consequence. Administered in teaspoonful doses in hot water, it will prove dependable in all conditions where indicated.—(N. Y. Pharm. Co., Bedford Springs, Mass.)

NOT TREATED RIGHT.—Little Mary's father had denied her a pleasure which she had confidently expected to enjoy. That night, when she said her prayers at her mother's knee, she concluded with this petition:

"And please don't give my papa any more children. He don't know how to treat those he's got now."

VASO-MOTOR DERANGEMENTS.—The part played by the vaso-motor system in countless diseases is at last thoroughly recognized. As a consequence, circulatory disorders are among the most common functional ailments that the modern physician is called upon to correct. Various heart tonics and stimulants are usually employed, but the effect of these is rarely more than temporary. To re-establish a circulatory equilibrium that offers real and substantial relief from the distressing symptoms that call most insistently for treatment requires a systematic building up of the whole body. Experience has shown that no remedy at the command of the profession is more serviceable in this direction than Gray's Glycerine Tonic Comp.

For nearly 20 years this standard tonic has filled an important place in the armamentarium of the country's leading physicians. Its therapeutic efficiency in restoring systemic vitality and thus overcoming functional disorders of the vaso-motor or circulatory system is not the least of the qualities that account for its widespread use. The results, however, that can be accomplished in many cases of cardiac weakness have led many physicians to employ it almost as a routine remedy at the first sign of an embarrassed or flagging circulation.—(Purdue-Fredrick Co.)

OBSERVATIONS ON BORNYVAL.—Dr. Domenico, in "La Clinica Medica Italiana," writes: "An extraordinary number of publications by eminent colleagues in the medical press dealing with a series of clinical cases in which Bornyval-Riedel was used impelled me to make special systematic observations.

"In my opinion the following conclusions may be drawn from the experience of these cases and from others wherein the patients were not confined to bed:

"1. Bornyval is a therapeutic remedy which has proven to be of excellent value in all illnesses associated with functional disturbance of the nervous system.

"2. Bornyval is a very useful and pleasant valerian preparation, containing the active constituent of the drug in an accurately graduated dose. It has no unpleasant taste, and is easily taken.

"3. If the stomach is very sensitive eructations with a camphor smell may occur, but this is comparatively rarely observed.

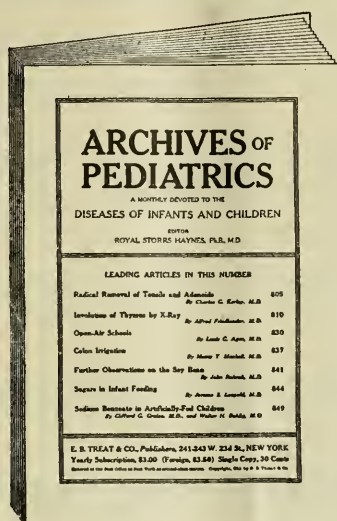
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produces definite diminution of the convulsive attacks.

"5. Bornyval is very effective in allaying the vomiting and pain of gastric neuroses. I have noted great improvement in gastric crises after bornyval treatment.

"6. Bornyval acts promptly in cardiac neuroses; it diminishes the pain, lowers the blood pressure in irritable conditions of the heart and determines greater regularity of the cardiac function.

"7. I have never observed any unpleasant effects after bornyval, even when the treatment has been continued for a long period (in one case more than two months), or when very large doses have been given (in one case 10 capsules daily). Nor have any unpleasant effects occurred when the daily dose has been changed, or when the remedy has been suddenly given up." (J. D. Riedel & Co., New York.)

IT IS ADVISABLE to take a surface scraping of all so-called "eczematous" eruptions about the axillae and groins. In nine cases out of ten fungus will be found present.—Urologic Review.

HOMES FOR HOMELESS CHILDREN.—Placing-Out Department Finds Childless Homes for Little Dependents.—There is a homeless child for every childless home in the State of New York. It is the aim of the Placing-Out Agency of the Association to bring together as many as possible of these homeless children and childless homes, says the State Charities Aid Association's news bulletin.

We do not say that for every childless home

there is a golden-haired, blue-eyed, three-year-old little girl of respectable parentage, but there is some child somewhere. Perhaps it is a red-haired, freckled, seven-year-old boy who is too old to be a pet and too young to do the work on the farm.

Why should foster parents have more rights than real parents, and presume to choose the sex, complexion and temperament of the child that they are to bring up? What are homes for if they are not to bring up children?

During the fourteen years of this work nearly 1,600 combinations of homeless children and childless homes have been effected, to the great benefit of the children concerned, and more especially of the families entrusted with them.—S. C. A. A. News.

UNITED STATES CIVIL SERVICE EXAMINATION.—Physician (male). June 4, 1913. The United States Civil Service Commission invites attention to the fact that among the vacancies to be filled as a result of the open competitive examination for physician, for men only, to be held on June 4, 1913, it is expected to fill one in this position at \$150 a month, for service in the Insane Asylum at Ancon, Canal Zone, for which an unmarried man is desired.

The Isthmian Canal Commission states that the appointee to the position mentioned above must be experienced in the treatment of the insane, and that one without this experience cannot be used.

Examinations will also be held to fill positions as dentist and assistant dentist in the Indian Service. Applicants should address the U. S. Civil Service Commission, Washington, D. C.

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INTERNAL HEMORRHOIDS

By Charles J. Drucek, M.D., of Chicago

EVERY little while a patient suffering with hemorrhoids comes to me stating that his doctor sent him to be operated upon. Sometimes I find these are not operative cases and that is my reason for bringing this subject before you. I shall try to show when we should and when we should not operate upon hemorrhoids. It is not so material how you operate as to know in what classe of cases to operate and why the wound may be slow to heal or why the hemorrhoid recurs.

Internal hemorrhoids are varicosities of the middle or superior hemorrhoidal vessels and arise entirely within the anus. They begin at the points of anastomosis between the portal and caval systems. These anastomoses are very numerous. The most common origin is at the level of the valves of Morgagni about one-half inch above the anal orifice and from here they gradually extend up to the larger trunks and plexuses. Even normal veins are somewhat enlarged in this situation and are called glomeruli.

Hemorrhoids may be found at any age of life. They are uncommon in children, but several good authorities have reported cases. Trunk (Tuttle) p. 583 reported 39 children under 15 years of age of whom five were under one year old. Young adult and middle life is the most frequent age because such factors as environment, habits and constitutional peculiarity are most active then. In advanced life the absorption of the perirectal fatty tissues, the relaxed muscular tone, constipation and sele-

rotic changes in the liver and blood vessels contribute to produce hemorrhoids but we also find hemorrhoids frequently in the nervous, anemic individuals because of nerve and muscle exhaustion which causes circulatory relaxation and dilation. For this reason melancholic, choleric, sallow individuals who suffer from liver disturbance are prone to hemorrhoids. In women at the menopause we occasionally have a hemorrhage from these vessels which is a sort of vicarious menstruation.

The text books divide hemorrhoids into arterial and venous. This is however not a distinction of kind or variety because the two conditions are not similar in any sense. The capillary hemorrhoid is a small tumor, rarely larger than the end of the little finger and sometimes as small as a pin head. It is an arterial naevus, spongy in texture and resembles a strawberry in appearance. Early in their existence they have a granular surface covered with a very thin wall and are very liable to bleed. Later plastic exudate and thickened areolar tissue covers the vessel and hemorrhage is less liable. The gentlest examination or even the passage of the bowel movement is sufficient to start the hemorrhage. I recall a case which bled profusely and on examination the pile was found no larger than the head of a black pin. Excessive hemorrhage particularly if spurting in character, is pathonomic of the capillary hemorrhoid. Frequently large amounts of blood are lost and a number of deaths have been recorded from this cause. Of course a large capillary or arteriole is necessarily involved in such a case. This tendency to great loss of blood makes the capillary hemorrhoid much more dangerous to the patient than

the venous variety. In the palliative treatment this distinction is imperative because the patient may be exsanguinated while the physician is temporizing with injections or styptics. The capillary variety do not protrude or cause any of the pain or discomfort attendant upon the venous variety. Hemorrhage itself is the cardinal symptom and requires energetic or even heroic treatment.

The venous hemorrhoid is more common than the arterial. It may appear as quite a tumor frequently one half to one inch across its base with a mucous membrane covering which is livid bluish and glistens. Matthews reports seeing one as large as a small orange. The venous hemorrhoid is situated in the submucous connective tissue and is composed of a dilated and varicose vein with its capillaries and also the arterial capillary supply. These tumors are not purely venous. Sometimes several small veins may be twisted together into one mass. The sacculaton and varicosities are limited to the venous vessels and do not affect the arteries. Around this mass of veins is a fibrous capsule which sends trabeculae (Partitions) in between the veins. The mucous membrane covering the pile is chronically inflamed. Early the walls of the veins are thickened by this inflammatory hypertrophy, but later they are extremely thin with nothing but an endothelial covering. Sometimes such vessels may form large venous pockets.

Internal hemorrhoids are brought on by anything that increases the local blood pressure. Man is the only animal that assumes an erect posture most of his waking hours. In this position of course a heavy column of blood must be lifted through these veins continuously for many hours. All during our active life there is this predisposition to hemorrhoids which needs but some little local congestion or inflammation to develop the varicosities. For this reason proctitis is very common cause of hemorrhoids. Early in my work I noticed this association of hemorrhoids with proctitis. The acute catarrhal proctitis is often met with and in every case you will find an edematous mucous membrane with the hemorrhoidal vessels engorged. As the proctitis subsides the hemorrhoidal edema and engorgement also reduces and finally disappears. If, however, the proctitis persists as a subacute or chronic form the hemorrhoids also continue and a gradual hypertrophy of the mucous membrane occurs. This increases the bulk and weight of the

mucosa which separates and slides down on the areolar tissue until it is grasped in the sphincter. The spaces of the submucosa about the hemorrhoid are filled with connective tissue. Later when the proctitis reaches the atrophic stage the hemorrhoids remain because of this connective tissue infiltration which permanently constricts the venous outflow. Now begins a second factor. The descending fecal mass acting in the reverse direction on the veins distorts them further and tears more mucosa from the muscular wall. With each bowel movement the hemorrhoidal mass acts as an obstruction as the feces are forced through. This increased muscular action drags down the hemorrhoid and the adjoining mucous membrane until they prolapse thereby increasing the size of the hemorrhoid itself. Finally when they have attained considerable size they prolapse easily and act as foreign bodies tending to excite the sphincter.

Hemorrhoids brought on in this manner are the result of digestive disturbances. The improperly digested or fermenting bolus acting as an irritant. In this way constipation is a frequent cause and the vein ruptures by the engorgement and stretching due to the passage of the feces and not to any traumatism. In this same way drugs used to relieve the constipation also frequently congest the rectal circulation—aloes, senna, calomel and gamboge. Warm enemas also act in this manner. Certain articles of food by irritating the mucous membrane cause increased peristalsis or tenesmus and may provoke hemorrhoids. Spices, peppers, mustard, sauces, radishes, watercress, tamales, chili con carni, pickles, alcoholics and tea. An excess of carbohydrate diet which cannot be cared for by the liver blocks the portal circulation and later the hemorrhoidal vein. These dietetic changes account for the apparent influence of the seasons upon the hemorrhoidal circulation. As the warm spring weather comes the system cannot handle the same amount of hydrocarbons it has been accustomed to consume during the winter and the blood is thrown on the portal circulation. There are many other conditions which cause straining or bearing down by the patient and thus congest the pelvic venous current, particularly chronic constipation, stricture of the rectum or urethra, stone in the bladder or an enlarged prostate. The pregnant uterus or myoma of that organ, pelvic exudates, adhesions or even a retroverted uterus. It is well to

bear each of these conditions in mind because a patient may consult you when suffering with one of these conditions and also complain of hemorrhoids. The hemorrhoids, however, do not require treatment directly, but are wholly dependent upon the underlying condition in this same manner all those occupations that increase the abdominal or pelvic pressure will induce hemorrhoids as severe muscular exertion, prolonged standing or sitting still, especially if on a vibrating platform as with railway men or teamsters. Desk workers also are frequently sufferers from sitting in a bent over position which crowds the abdominal contents toward the rectum.

There is one other class of positive causes of hemorrhoids in diseases of the heart, liver, pancreas or kidneys and occasionally tuberculosis or syphilis. Since the exciting cause in this class of cases cannot be removed there is no hope of curing the hemorrhoids and tentative treatment is all that should be attempted.

Symptoms.—Hemorrhoids sometimes exist for years without causing any symptoms whatever, and again, they may be troublesome from the beginning. When they become inflamed or ulcerated they cause great pain and distress. They probably set up more reflex nervous symptoms than any other disease. They may remain quiet for a long time and then without any apparent cause become inflamed. When they are of large size they produce a sensation of fullness or distention of the rectum, as if some foreign substance were present. During defecation the tumor is forced within the grasp of the sphincter and tenesmus is set up, with also a feeling of nausea and sickness. Sometimes the tenesmus is agonizing and its daily repetition exhausts the patient. After each bowel movement he must replace the hemorrhoid and in doing so is likely to induce a spasm of the sphincter. If the hemorrhoid is allowed to remain within the grasp of the sphincter it becomes strangulated and finally gangrene develops and the hemorrhoid sloughs off. Thus nature attempts to cure the trouble. Sometimes the slough or the surface beneath it becomes infected and pyemia with perhaps a fatal result is the termination, or an abscess develops and a fistula is the sequel. If strangulation and sloughing do not occur, the sphincter gradually relaxes and the piles are forced out with coughing, sneezing or stooping or even by walking or standing and the piles remain out altogether. An acrid, irritating mucous discharge from the anus, due to the chronic proctitis and

keeps the perineum moist and often excoriated, thus favoring the growth of warty excrescences. This condition occurs most frequently in the aged and here sometimes the discharge may saturate the clothing and the anal sphincter is very much relaxed thus allowing an almost constant prolapse. Of course inflammation and thrombosis with suppuration may occur without strangulation. Tarka found ulceration or fistula in nearly one-half of his cases of hemorrhoids. If the hemorrhoids remain prolapsed for any time the surrounding anal wall becomes inflamed and edematous and this swelling further interferes with reducing the piles.

Bleeding in some degree is a symptom of all internal hemorrhoids. It may be slight, a mere streaking of the passages or profuse enough to cause fainting. Frequently hemorrhage follows each movement of the bowels for a while and then ceases for several days or weeks only to recur again about the time the patient thinks he is cured. This constant loss of blood produces an anemia very suggestive of malignant disease. Prolapse of the tumor always favors bleeding. In women a hemorrhagic flux sometimes replaces menstruation and in apoplectic subjects or those with atheroma this periodic loss of blood lessens the tension of the blood vessels and diminishes the tendency to rupture of the cerebral vessels. In such cases the prudent surgeon hesitates before removing the outlet.

Hemorrhoids of any variety are prone to exacerbations of inflammation followed by periods of rest. During the inflammation they are very liable to ulcerate, slough or develop abscesses beneath them. When the tumor is swollen or strangulated and actively inflamed, the sphincter alternately contracts and relaxes, causing excruciating pain which lasts until the hemorrhoid sloughs off, is operated upon or is relieved by local remedies. In old cases the hemorrhoidal wall becomes tough and hypertrophied.

Diagnosis.—The diagnosis of internal hemorrhoids, per se, is quite easy, but the differentiation of the variety is much more difficult. Hemorrhage is the chief symptom and may be either venous or arterial in both varieties. The patient's description is something like this: During defecation and perhaps before the bowels have completely moved a more or less severe hemorrhage occurred which lasted for some time after he had finished his toilet. The blood came in spurts and was bright red, a dizzy feel-

ing came on and he became clammy and pallid. There was little or no pain and no protrusion. With such a history the rectum should be thoroughly examined in a good light and with a speculum. The hemorrhoid may be small and elude digital examination as it is soft and velvety but with a speculum it can be easily found because the stretching of the bowel usually starts the hemorrhage afresh and in a capillary hemorrhoid it bubbles or spurts.

In another case the patient says that after the bowels move he has to retain his seat because the blood continues to drop for several minutes and if in a hurry he goes about with the blood dripping and soiling his clothes. Here the hemorrhage is less severe because the connective tissue growth takes on a plastic infiltration forming a thick covering which can be torn only by such a considerable force as is only occasionally applied. The rectum feels as though it were only partially emptied and so the individual strains trying to expel something. Usually on palpation he finds the hemorrhoid within the grasp of the sphincters and unless it is replaced the tenesmus continues for hours. This is the venous hemorrhoid.

The capillary hemorrhoid is soft, spongy or granular and easily yields or tears on pressure. Hence hemorrhage results from even a slight injury and therefore the small capillary hemorrhoid is a source of great danger from the loss of blood while the large well formed venous hemorrhoid is not so dangerous. The venous hemorrhoid when of large size will protrude and if the patient assures us there is no protrusion we suspect internal hemorrhoids and probably of the capillary variety. Digital examination is unreliable in diagnosing internal hemorrhoids because even good sized tumors cannot be detected after they have been returned within the rectum unless pedunculated. Inspection assists only if they protrude. Let the patient retire to a lavatory and strain a little trying to force out the hemorrhoids. If this fails or is not convenient dilate the sphincter with a bivalve speculum and the pile will fall in between the blades. If the tumors are low in the rectum they may readily be seen by inserting one blade of a Sims speculum.

Other symptoms of internal hemorrhoids are vague and uncertain as they occur in other rectal troubles and may arise from remote causes. Pain in the thigh or back, sensations of heat or burning in the rectum and frequent micturition are all too unreliable to be considered worthy of any par-

ticular disease. It is well to take into account only such definite indications as relate directly to the rectum and anus but these significant tokens should require a thorough examination.

Treatment.—From what has been said as to the etiology and symptomology of hemorrhoids it is evident that the treatment varies with each case. Hemorrhoids that are amenable to treatment occur under very different conditions and in all classes of patients. There are many methods and most of them are good in properly selected cases. Your treatment is half finished when you select your case, determine its proper treatment and know what results to expect.

The reason you treat so few rectal cases is not that they are infrequent, but rather that your patients do not like to have an operation and particularly to take a general anæsthetic and be confined to bed. Patients suffering with piles are prone to use domestic remedies and nostrums until they are physical wrecks from loss of blood and pain. All the time they refuse to be operated upon. With our present knowledge it is not always necessary or wise to give a patient a general anæsthetic and keep him in bed or in a hospital three or four weeks irrespective of the variety or condition of the piles. Practically all uncomplicated cases, and they are numerous, may be operated upon with a local anæsthetic at your office or at the patient's home. This eliminates the danger to life from heart, lung or kidney complications of a general anæsthetic and lessens the pain and danger of secondary hemorrhage due to vomiting that occurs so often after a general anæsthetic. Where the tumors are isolated and prolapsed, they may be removed under local anesthesia at the office. Where they are not prolapsed and where they extend high up in the bowel we find they are usually complicated with a narrow anus and an hypertrophied sphincter. Under such conditions it is difficult to reach the top of the varicosity and as the whole pile must be removed it had best be done under ether in such cases. Of course, if all of the pile is not removed your operation is a failure. If several hemorrhoids are to be removed the operation had better be done at the patient's home even if under local anesthesia because if performed in your office there is danger of secondary hemorrhage from a stitch pulling loose by the patient's movements on his way home.

Let us divide these venous tumors into

- 1—Those that may be treated tentatively.
- 2—Those that may be removed under local anesthesia.

3—Those that require a general anesthetic and confinement to bed with absence from work for some time.

Venous hemorrhoids may be much relieved by palliating where surgical treatment cannot be instituted either because of the patient's refusal, some jeopardizing systemic condition or in aged or delicate individuals. In all of these conditions unless there is excessive bleeding or strangulation it is better not to operate but to use local tentative measures as there is always danger of ebolism, hypostatic pneumonia or phlebitis after operation on such individuals.

If the hemorrhoids are inflamed and prolapsed they must first be reduced. If the patient is seen at home he should be sent to bed. An upturned chair is placed in a slanting position on the bed and the patient on his knee reclined against the chair. This places him in the extreme oblique position, a posture between the Sims and the knee chest.

Next paint the whole hemorrhoidal mass with 2 per cent cocaine in 1:1000 adrenaline solution and wait twenty minutes because the circulation in this edematous and strangulated mass is slow and the drugs are not rapidly absorbed. Gravity depletes the tissues and the patient's position with the thighs flexed relaxes the pelvic muscles so that the protrusion will either reduce of its own accord or may be easily replaced. Of course all of it does not belong within. Probably about one-half does and a lateral sulcus running parallel with the median raphe will usually be found. Internal to this line is mucosa and external to it is the skin. This should be remembered because if the whole mass is placed within the rectum the patient will be just as uncomfortable as he was before. That part external to the sulcus is edematous external tissue and sometimes it may be necessary to incise this to deplete it quickly.

After the hemorrhoids have been properly replaced the whole anal region should be well covered with ointment containing hydrastis, oil of cade and zinc oxide, then covered with a gauze compress and the patient let down on his bed stretched out prone. The pad and buttock are now strapped down with adhesive plaster reinforced with a T bandage. If the hemorrhoids are inflamed but not strangulated they should have a warm slightly antiseptic bath followed by a cold douche and then the ointment applied. The patient should lie on his face as long as he can. He then may turn on his side with the hips elevated in a pillow or two. Keep the hips up and

do not let him lie on his back. This is important because it will arrest inflammation, hasten resolution and relieve pain more effectively than any other remedy.

The next day put the patient on his side with the knees well flexed, dilate the sphincter gradually and massage the hemorrhoidal field. Irrigate the rectum and anal canal with sterile water and swab the piles with 1:1000 adrenaline solution and apply the ointment on the outside. If there is much mucous discharge it will be well to inject one-half ounce of aqueous fluid extract of krameria at night.

The bowels must be kept open each day and it is a study with each patient to find something laxative but not exhausting. Sulphur is gentle in its action, produces a soft mushy stool which easily slips by obstructions and allays inflammation by its presence in the stools. Castor oil also produces a soft stool, does not create gas and leaves the abdomen relaxed. It is a good plan to have the evacuation at night that the patient may rest after cleansing and dressing the rectum.

Hemorrhoidal sufferers should avoid strenuous exercise, bicycling, riding, automobiling and railway journeys as these all maintain a position with the thighs flexed which opens the anus below the internal sphincter thus losing the anal support. By careful close attention these patients can usually be made very comfortable but of course it is only tentative and not curative.

Removal under local anesthetic.—The details of technic of removing hemorrhoids under local anesthesia have been presented in another paper and need not be discussed here. One of the cardinal reasons for using a local anesthetic is to interfere as little as possible with the patient's pursuing his regular duties. Therefore, too much must not be attempted at one time. Where several hemorrhoids are to be removed it will require several sittings. Only one or two should be removed on one day. A local anesthetic has a distinct advantage in aged, timid or nervous patients who object to a general anesthetic, but you must attempt only such cases as the tumor can be brought outside or where the anus is patent. Internal hemorrhoids bleeding and painful and demanding operation but not protruding cannot be satisfactorily removed under a local anesthetic because the first step in the treatment is careful but thorough dilation of the sphincters and that is impossible without a general anesthetic. If the anus is patent or if you can easily reach the upper limit of the base of the pile with-

out stretching you may operate under cocaine but if the pile is large the patient should rest in bed a couple of days. The determination as to which hemorrhoids may be operated upon with local and which with general anesthetic is an important matter and in a general way we may say that most cases may be operated upon safely in the physician's office or at the patient's home under a local anesthetic causing but a few hours to two days detention from business. Where only one or two piles exist the operation may be performed in the office and the patient sent home after a little rest but in aggravated cases where a large area is involved or where the blood vessels are atheromatous the work should be done at the patient's home or at the hospital to protect against the chance of secondary hemorrhage. With careful treatment you will find that only a small part of your hemorrhoidal cases require a general anesthetic.

The important relationship of the abdominal and pelvic organs to the rectum is always important and it must be remembered that any one may be sufficient to produce the hemorrhoids and if we remove them ever so carefully but fail to remedy the exciting cause the hemorrhoids are sure to return. The treatment of any other diseased condition bearing on the rectum or obstructing its venous flow is fully as essential as the thorough removal of the hemorrhoidal tumors. I have seen a number of such cases where the hemorrhoids had been removed and new ones developed and where when treatment was directed to the adjacent organs the hemorrhoidal trouble was spontaneously and permanently cured.

438 East Forty-sixth St.

TREATMENT OF PEMPHIGUS MALIGNUS

In a true case of malignant pemphigus in a female, G. Praetorius injected 20 Cc. of the undefibrinated blood of the husband directly into the veins. After three days the skin lesion showed marked improvement and after one week all the vesicles had disappeared. Eight months have elapsed since then and the patient has remained perfectly well with normal skin despite the fact that she was in a pitiable condition when first seen, having marked cachexia, high fever and delirium. The use of undefibrinated blood, the author states, is not attended with any dangers if the operation is performed rapidly and a small canula employed.—Muench. med. Woch., April 22, 1913.

THE TREATMENT OF ALCOHOLISM

By George E. Pettey, M.D., of Memphis, Tenn.

IN a chapter in his very instructive and comprehensive work "Narcotic Drug Diseases and Allied Ailments,*" Dr. George E. Pettey, of Memphis, Tenn., outlines a course of treatment for alcoholism that has proved very effective in a long series of cases under his care. The author points out that the real physical basis of the habit is to be sought in the toxic condition of the system. Alcohol blunts the sensibilities of the nervous system and retards the excretion of the products of waste, resulting finally in a serious functional derangement of every organ in the body. The patient thus finds it necessary to keep the nervous system constantly blunted in order to obtain a reasonable degree of comfort.

The first step in the treatment is, then, to thoroughly cleanse the system of waste products. This will usually require three or four days, after which the withdrawal may be begun without risk or discomfort to the patient. The author does not consider it safe or at all advisable to withdraw alcoholic liquors abruptly.

The next step is to remove the cause or set of causes which originally led to the formation of the habit, or which had an influence on its continuation. These may be mental, moral, social, or a deranged physical condition. In cleansing the system cathartics are of course our most valuable agents. The following formula is one which the author has used to good advantage.

Calomel
Powdered Ext. of Cascara.....āā grn x
Podophyllingrn j
Strychnine Nitrategrn 1/10
Atropine Sulphategrn 1/50
Mix and make 4 capsules.

Sig.: One capsule every two hours on an empty stomach.

This is best followed by a course of salts or oil in ten or twelve hours after the last capsule. The patient is then given nourishment and allowed a full day's rest from purgatives. The amount of alcohol may now be reduced but not withdrawn altogether. In forty-eight hours a second purgative course is given and this will usually cleanse the system to such a degree as to permit the discontinuance of alcoholic drinks. If, however, the patient is still very nervous or is threatened with delirium tremens the alcohol should be gradually re-

*"The Narcotic Drug Diseases and Allied Ailments" by Geo. E. Pettey, M. D. F. A. Davis Co., Philadelphia, Pa. 1913

duced. Copious water drinking and vapor baths are advised. Electricity does not seem of any value, but hydrotherapeutic measures if persistently used are often of service. Gelsemium is used for the relief of nervousness and insomnia due to cerebral hyperemia. Strychnine nitrate, 1/20 grain from three to five times a day, hypodermically will do much to overcome the appetite for alcoholic drinks. This may be supplemented by the following mixture given by mouth for two or three weeks:

Atropine Sulphategrn. 1/125
Hydrastine (yellow alkaloid)...grn. 1/10
Tinct. Capsicumm℥y
Quinine Hydrochloridegrn. j
Water5j

Mix and make one dose.

Give a dose similar to this three times a day.

After this has been kept up for about two weeks, both this and the strychnine should be discontinued and the patient put on ichthyol, which he should continue to take for about a month.

The catarrhal condition of the stomach is the remaining disorder which would exert the greatest influence toward a return to the old habit, because of its effect in impairing digestion.

Fortunately, catarrh of the stomach yields readily to treatment in these cases after alcohol has been discontinued, but active treatment for this disorder is essential, and it should be continued until all trace of it has disappeared and the patient's digestion is perfect. He should be able to eat and enjoy three good meals a day.

Patients of this class need the strength derived from a hearty breakfast to take the place of the support they formerly received, or thought they received, from the alcoholic drinks. No part of the treatment is of greater importance than this, since, if it is not successfully carried out, the patient will not be so secure from relapse as he should be. Impaired digestion, with its attendant lack of strength, operates as an ever-present influence suggesting the need of some stimulant, some outside supportive, and this amounts to an autosuggestion to take a drink. This is a dangerous condition for the patient to be left in.

Ichthyol meets this indication more perfectly than anything else has done in the author's hands.

Ichthyol is said to be an alterative, an antiseptic, and a vasoconstrictor, but neither of these properties, nor all of them,

seem to fully account for its action. The author's use of it, to a large extent, is empirical, but is based on his own clinical experience.

About thirteen years ago the writer's attention was directed to ichthyol in the treatment of tuberculosis by reading an abstract of an article by a German writer. This article reported the treatment of 65 cases of tuberculosis with ichthyol, given internally in doses of from 10 to 15 grains three to six times per day. The results were so much more favorable than the results of other methods of treatment that the author determined to try it in a case then under treatment. This case had resisted practically all the then-accepted methods of treatment. The patient had had fever for more than six months and was declining rapidly in spite of the most active treatment. Ichthyol was obtained and a 00 capsule full given three times a day.

The treatment the patient had been on was continued for ten days in connection with the ichthyol, but by that time a distinct improvement in her condition was noticeable. She was taking food more liberally and with relish. At this time all the other medicines were discontinued and ichthyol alone was given from that time on.

It had been almost impossible to get the patient to take nourishment enough to sustain her strength, but within two weeks from the time of beginning the ichthyol all the food which was thought prudent to allow was taken with relish and more was wanted and this was digested and assimilated without difficulty. There was a persistent decline in the temperature until the normal was reached in about six weeks and the fever did not recur after that.

In a few weeks the patient was able to be up most of the day and convalescence was more rapid from that time on. In the course of three or four weeks from the time of beginning the ichthyol she was allowed all the food she wanted, and it was surprising, as well as delightful, to see how much she could eat and digest without the slightest discomfort from it. She gained flesh and strength rapidly and in six months was in good health, and has remained well from that time until the present writing.

This experience led the author to try ichthyol in other cases and during that year 16 cases of tuberculosis were treated with it with better results than any other line of treatment had ever yielded in his hands. The one uniform and really remarkable effect was shown in the prompt restoration

of the appetite, accompanied by the ability of the patient to eat almost anything in liberal quantities and to digest and assimilate it perfectly. Intestinal fermentation and diarrhea, so often seen under forced eating, were entirely absent in cases in which the ichthyol was given.

The power of the ichthyol to increase the appetite and to promote digestion and assimilation of the food with rapid increase in weight led the author to make use of it as a flesh builder and an appetizer in all conditions where such a remedy was indicated, and this use has been attended by most satisfactory results.

In the treatment of chronic catarrh of the stomach of alcoholics the author formerly depended upon hydrastine or berberine with petroleum emulsion, but, while these are excellent remedies, they are so much inferior to ichthyol that they are not in any sense to be compared with it.

The power of ichthyol to contract dilated capillaries when applied locally to a mucous membrane has been long known, and the author is of the opinion that this probably accounts to some extent for the happy effect it has on the catarrhal conditions of the stomach in alcohol cases. Whether this be the explanation of its action or not, the author cannot say, but from his wide clinical experience with it he is able to say that it meets the indications in these cases most perfectly; in fact, so perfectly that he does not hope for anything better.

Patients object to taking ichthyol for a few days, because of the sulphurous eructations from it, but its antiseptic effect arrests all fermentation in the stomach within three or four days from the time its use is begun, if taken regularly, and then it is no longer objectionable. There is no advantage in putting it in capsules, because the eructations are the disagreeable part of its effects and these occur just as badly if the remedy is given in capsules as if given in solution; therefore, the author has long since abandoned any effort to give it that way.

It is best used in a 25 per cent. solution and this should be still further diluted when it is given. A 25 per cent. solution at times proves to be irritating to the throat, but if diluted with a swallow or so of water this does not occur. Cinnamon water disguises the taste to a greater degree than any of the other aromatic waters.

The following formula, usually employed

by the author, has been the most satisfactory in his hands:

Ichthyol (Merck & Co.'s).....	3j
Garantose	
Sodii Bicarbonatis	āā grn. iv
Aquae Cinnamomi	5ij
Aquæ Puræ	q. s. ad. 5iv
M. et ft. sol.	
Sig.: Teaspoonful before each meal.	

The garantose (saccharin), 1 grain to the ounce of mixture, sweetens it just sufficiently to take away the bitter taste and the soda is added to render the garantose soluble; otherwise, these ingredients have no value in the prescription.

The indications to be met in some cases of alcoholism are simple, and the treatment can be easily carried out, while in others they are so complicated that the resources of the best-equipped institutions, as well as the skill of the most resourceful physician, will be taxed to the utmost; but with the aid afforded by a well-equipped institution, a competent physician can effect as large a percentage of cures in cases of chronic alcoholism as can be effected in any other serious ailment.

ADVANTAGES OF BENZOATE OF MERCURY*

By Clifford B. Sweeny, M. D., of Pittsburgh, Pa.

WE must frankly admit that the therapy of syphilis is in a rather unsettled state at the present time. Hopes have been shattered, and dreams have failed to come true. We cannot help deploring the circumstances which for a time revolutionize medical thought, and alas, leave behind them a degree of scepticism and uncertainty which requires years to overcome. Yet, this is a feature of progress, and without progress our profession would represent only a barren plain outlined by whitened sepulchers.

For four hundred years mercury was recognized as the only remedy which had a specific influence upon syphilis. But suddenly we find that old things have passed away. From across the sea there bursts upon the therapeutical firmament a meteor of dazzling brilliancy and the profession bows down with one accord to chant the *Te Deum* "*Gloria and Therapia Sterilizans Magna!*"

But time is the adjudicator of all things, and medicine furnishes no exception to this rule. However loudly a remedy may be proclaimed by its sponsors, it is bound to find its proper place in due time, and the

*Urologic and Cutaneous Review, March, 1913.

more insistent the demand for recognition, the sooner it will be adjudged by the profession.

No remedy illustrates this fact better than salvarsan, which in one brief year has run a most spectacular career and settled down to a very limited but fruitful field of usefulness.

Undoubtedly there is a strong tendency to return to our oldtime remedies. It seems but fitting for us to consider at this time how we shall administer mercury so as to obtain the best results. One feels a hesitancy in asking such an elementary question. Yet he will be astounded, almost as soon as he begins to investigate, to find what a diversity of opinion exists upon the subject among our most eminent syphilographers.

Upon the utility of the remedy the profession may be said to be of one mind. The unbounded faith of men such as Schaudinn, Metchnikoff, Neisser and Wassermann is reflected in the minds of physicians in every department of practice and finds its expression in the application of this agent in one form or another in a very large percentage of cases treated throughout the civilized world.

This fact only intensifies our obligation to consider carefully the best manner in which to administer mercury.

We are informed by as eminent an authority as Fournier that "oral administration of mercury is the true method." In this country White and Keyes are earnest advocates of the same idea. Jonathan Hutchinson considers his gray powder with opium as superior to all other forms of the drug. Upon the heels of these opinions comes Hay's rather pessimistic expression: "Internal administration of mercury is feeble and slow to act upon syphilitic manifestations and disappointing to the patient." The physicians of Hot Springs, Ark., (which place may be regarded as a veritable dumping ground for uncured and badly treated cases of syphilis) are almost a unit in their esteem of the injunction method; special facilities for the application of hydrotherapy having much to do, no doubt, in causing them to select this form of application.

Considering briefly the objections of the several methods of administration, we may remark that the uncertainty of results depends largely upon the faulty assimilation and absorption of the drug. It is most difficult to determine what a normal dose of mercury is in a given patient without taking chances upon deranging the digestive tract. Especially when this is accomplished by ptyalism the condition is not

pleasant. Again we must not overlook those cases where we find the mercury accumulating in the liver, to be thrown in the general circulation abruptly and with disastrous results.

The injunction method presents so many objectionable features that we may regard it as being adapted to sanitarium treatment only. Aside from the enforced discomfort and the publicity which this method entails, we must consider the extreme lack of impressionability of certain skins, which renders the treatment useless.

The sometime popular vapor bath has vanished into thin air, leaving no trace of therapeutic justification for even a transitory popularity.

We will now consider what I regard as a most desirable method for the introduction of mercury, by injection.

What are the advantages of administration of mercury by injection in syphilitic cases?

First, we are able to control our patients better. The necessity of coming to the physician's office regularly—the moral effect of methodical and skillful administration of the remedy at stated intervals and the opportunities thus offered for timely admonitions, all count in the patient's favor. The medical attendant is thus enabled to observe the progress of treatment from day to day. How easy and common it is to hand out a bottle of pills to a patient and dismiss him with the suggestion: Come back and see me when these are finished! Nothing short of most untoward conditions is apt to bring such a patient back to the physician earlier, and if luckily he is faithful in taking his medicine and seems to improve he is likely to grant himself a furlough for good deportment and thus interrupt his treatment.

It is useless to dwell upon the effects of mercurials upon the digestive tract. The widely varying dosage required to produce a given result in different cases shows how much the secretions of the stomach and bowels, as well as other influences, enter into this perplexing problem. The cumulative effects, their train of unpleasant and lingering manifestations, ptyalism, stomatitis, etc., are unpleasant reminders of tardy progress.

In striking contrast with all this stands out the administration of the mercurial by injection. Clearly, accurately and with assurance of specific results without digestive or other disturbances our work may be accomplished. We here have a minimum dosage, absolute control of the drug; we can detect the earliest evidence of hypermedication and, best of all, shorten the time

of treatment in every case. Surely, these are all points worthy of serious consideration.

But there are drawbacks to the injection method, and we must consider these too.

First of all is the question of pain caused by the mercurial. This is a factor that we cannot ignore. Such pain varies in duration from a few hours to several days, and may be sufficiently severe to entirely dishearten the patient and cause him to abandon the treatment. Too many physicians belittle this objection, believing that these patients exaggerate their statements. A single injection into their own muscles would promptly change their minds. Large indurated and painful nodules often stand out as sad reminders of where the patient was "shot." Aside from their discomfort these are proof positive of faulty absorption. They may indicate that the injection was not properly given. I will refer to this later.

We have enumerated the leading factors, favorable and unfavorable, to the injection method. Let us now consider the form of mercurial to be used in our injection. Of these, from an active therapeutic standpoint, calomel is probably the most popular. It is likewise the most painful. The bichloride and gray oil are close seconds from the standpoint of pain inflicted and therapeutic activity. The succinimide of mercury has enjoyed a popularity which I have found it impossible to justify. Of the various preparations of mercury used hypodermically I have found it less active than those enumerated above and certainly as likely to produce very painful and hard nodules at the site of injection. The salicylate of mercury is reliable, although not devoid of the objectionable features which characterize those already enumerated.

Half a dozen years ago, while in the St. Louis Hospital, Paris, in the service of Professor Gaucher, I became much impressed by the effects obtained through the use of a preparation having for its active principle the benzoate of mercury. This was prepared from freshly made mercury benzoate, dissolved in sterile water, so as to form a 1 per cent. solution, with an addition of 2.5 per cent. of sodium chloride. The remedy was referred to in a recent number of "L'Union Pharmaceutique" by M. Desmoulières and M. Lafay. While I observed brilliant results following its use, there was still the drawback of pain after the injection, likewise some induration. As to the therapeutic activity, I have never found any other mercurial to compare with the benzoate.

Having in mind the elimination of all

objectionable features, I succeeded in elaborating a vehicle having for its base an aqueous extract made from the contents of the thoracic duct of the healthy bullock. After this had been prepared I added the chemically pure benzoate of mercury. This is another important point. Ordinarily, commercial benzoate of mercury is crude and irritating—totally unfit for this purpose. As intimated above, it should be recently prepared.

I give here the exact method of preparing this solution.

The healthy bullock, having been slaughtered, the contents of the lymph reservoirs (the thoracic duct being the most capacious) is collected under strict antiseptic precautions. This lymph is rich in active, vigorous lymphocytes. An expressed extract is then made from the lymphatic glands, which is then filtered under high pressure. The filtrate is then added to the lymph which has been already obtained. This combined product, representing all of the dynamic constituents of the lymphatic system, is then subjected to the D'Arsonval process, after which benzoate of mercury sufficient to represent one one-hundredth grain to the minim is added. If the benzoate is pure, there will be no precipitate thrown down. The preparation is colorless and will keep indefinitely, but should be protected from the light by being kept in amber bottles.

This forms a beautiful, transparent preparation, absolutely non-irritating, and, when ordinary precautions are exercised, causes little or no pain. Most important of all, it insures perfect absorption of the drug in all cases. I believe this property cannot be claimed for any other preparation of mercury. I have been astonished at the prompt constitutional effects displayed by a minimum dose (five minims, representing 1-20th grain of the benzoate).

It has been my custom to administer the remedy in ten minim doses (1-10th grain mercury) daily. Frequently, especially in tertiary manifestations, I find it necessary to continue the treatment for three months. A slight disturbance of the gums warns one to reduce the dose and stimulate the secretions. Where the case is seen during the first or second stage of the disease I seldom find it necessary to continue treatment longer than sixty days. I have treated a sufficient number of cases in this manner during the past six years to satisfy my own mind as to the merits of the method.

I cannot refrain from dwelling upon the subject of care in the technique incident to the administration of the injections. I have spoken of these as being hypodermic. That

is exactly what I mean. I find no advantage in injecting into the muscle. Much pain and soreness are thus avoided. Injecting into the loose interstitial tissues underneath the skin, we find abundant surface for absorption of the solution without mutilation of the deeper and more sensitive structures. Again, these injections may be administered in the subscapular region upon both sides of the spine, alternating from day to day, scattering them sufficiently, so as to cause no discomfort from their proximity. The consistency of the fluid admits of the use of a very small needle (26 gauge); this again minimizes the pain inflicted. Of course, too much care cannot be exercised as to cleanliness. I find no necessity for sealing up the wound, for with a small needle puncture and thorough, deliberate massage at the site of injection, no fluid will escape.

At the risk of seeming unduly insistent upon this subject, I am impelled to urge care not only in selecting the best form of mercurial for injection but in exercising every precaution pertaining to the technique of administration. Much has been written at random by those of limited experience commendatory of the injection method. The uninitiated begins his work with keen anticipation of success and is chagrined when he finds that his patient cries out against a treatment which is painful and causes more distress than the malady for which he is being treated. Hope gives way to despair, and the physician is glad to return to the old method of treatment—if his patient has not already become disgruntled and gone elsewhere. This sort of experience is not pleasant to the practitioner, nor is it calculated to benefit him in his practice.

When I read the almost flippant articles lauding the injection method, and at the same time realize that these were inspired by a very limited experience and a fertile imagination, I tremble for the conscientious physician who believes such statements to be actual verities and carries his patient with him up to the mountain of exaltation only to have his hopes dashed to the ground.

To minimize the results of my experience with the injection method, in which I used the mercury benzoate compound described above, I may say that I can give my syphilitic patient the following assurances:

To minimize the period of treatment. I seldom find it necessary to continue this longer than three months.

To spare the digestive tract any disturbance incident to medication.

To forestall a recurrence of the disease, if reasonable precautionary measures are followed up and correct habits are observed.

Brief histories of a few of my cases will serve to illustrate results obtained.

CASE I.—Male, single, æt. 29. Man of intelligence and exemplary habits. The patient was unfortunate in contracting an initial lesion upon the lower lip through promiscuous use of towels in an industrial institution where he was employed. This had not been recognized as being of a specific nature until three months after its appearance, when I first saw him. He then had a very sore throat and the characteristic rash over the body. The patient also complained of extreme muscular weakness.

I began treatment, administering daily injections of ten minims each. At that time the chancre was indurated and the entire lip much swollen. Daily injections were continued for thirty days, when the chancre had entirely healed, and the throat was in very good condition. During a second month injections were given every second day, after which no further treatment was required. This case was treated three years ago. There has been no recurrence of his trouble.

CASE II.—Patient, male, æt. 35, married. Ten years ago he contracted syphilis, which was treated in a desultory way for some time, when the patient gained his physician's consent to marry. Two healthy boys were born. His wife also escaped infection. After repeated recurrence of tertiary manifestations at varying intervals, a violent ulcerative process involving the entire soft palate and extending into the posterior nares so mutilated the parts that nasal respiration was completely suspended; at the same time the patient was rendered quite deaf by occlusion of the Eustachian tubes. This was four years ago, when I first saw the patient, and I found a truly unpromising condition present. The posterior nares were completely obstructed. The uvula had lost its normal supports and was anchored down behind the remnant of the right faucial pillar. The patient was thoroughly uncomfortable and suffered from a deoxygenated condition of the blood incident to the mutilation of the pharynx and trachea.

I placed this patient upon ten minim daily doses of the mercury benzoate solution, did a resection of the posterior nasal vault, getting a free air passage through the normal channels. Injections were continued; and at the same time a large bougie was passed daily through the nares, with local treatment to the trachea.

At the end of three months all of the syphilitic lesions had healed, allowing unobstructed respiration. Hearing in the right ear was perfect, but the left tube remained occluded, with hearing decidedly impaired. All treatment in this case was suspended three years and a half ago, and at the present time the patient is in the best of health. He has taken on flesh and expresses him-

self as feeling perfectly well. A third boy was added to the family about two years ago, who is healthy and vigorous.

There is probably no syphilitic case more intractable to either medical or surgical treatment than stricture of the rectum. Careful, scientific surgical interference is often followed by disappointing, if not disastrous results. It is for this reason that I beg the reader's indulgence while I give the following brief history of such a case.

CASE III.—Patient, female, forty-five years of age. She had contracted syphilis from her husband early in her married life, which manifested itself by a variety of lesions, notably stricture of the rectum. This had been operated upon by a capable surgeon, but the patient was in worse condition following the operation than before—in fact, there was almost complete occlusion of the bowel. I first saw the patient while in this pitiable condition and advised a radical operation, which was agreed to. Immediately afterwards I placed the patient upon ten minim doses of the mercurial benzoate solution, which were continued daily. The wound in the bowel healed kindly without any contraction, and at the end of sixty days' treatment the patient was discharged.

Three years have elapsed since that time, and there has been no recurrence of symptoms.

I shall not further prolong this recital of case reports. Suffice to say that my experience with mercurial injections warrants me in concluding that for directness of medication, promptness and permanency of results, as well as from the standpoint of comfort to the patient, no other method can compare with this.

532 Pittsburgh Life Building.

THE INTERNAL SECRETIONS IN RELATION TO DERMATOLOGY*

By Sir Malcolm Morris, K. C. V. O.

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NEARLY twenty years have passed since Byrom Bramwell reported to the Newcastle meeting of the British Medical Association (1893) the results which he had obtained in cases of psoriasis, lupus vulgaris and acute eczema by the internal administration of thyroid extract. This was the beginning of organotherapy in connection with dermatology. Thyroid treatment had already been successfully used in myxedema by G. R. Murray, Hector Mackenzie, Arthur T. Davies and others; and it was now employed on an extensive scale in the therapeutics of skin affections. But, as was perhaps inevitable, it was administered with too little discrimination, and, though it found enthusiastic advocates, signs of reaction were not long in declaring themselves,

and after a while it was neglected and almost forgotten. Of late years, owing in part to the light that has been thrown upon the physiology and pathology of the ductless glands by a multitude of investigators, there has been a revival of interest in the subject, and the more discriminating use of animal extracts in many chronic skin diseases has yielded results more favorable than those at first obtained. The time seems, therefore, to be appropriate for considering in some detail the influence of the internal secretions upon the skin and its appendages, and attempting an estimate of the value of organotherapy in the treatment of cutaneous affections. * * *

CUTANEOUS SYMPTOMS OF MYXEDEMA.

How the thyroid and the other ductless glands influence each other and the body generally—whether the secretions elaborated from the blood and then, directly or indirectly, returned to it, stimulate metabolism and growth, or neutralize the toxins of metabolism, or exercise an inhibitory effect upon organs whose activity requires to be controlled, or whether there is a combination of these processes, is a question still involved in obscurity. Nor is the difficulty of determining the functions of the thyroid lessened by the interaction that takes place between this gland and others. But, however, the thyroid does its work, and whatever its relations with other glands, it is certain that degeneration of this organ is casually connected with the changes in the integuments which enter into the myxedema syndrome. It is probable also, though the evidence is less conclusive, resting as it does upon purely clinical grounds, that in irregular functioning of the thyroid is to be found in many cases, though not necessarily in all, the explanation of cutaneous changes similar to those met with in myxedema. In this disease the skin is cold, dry and rough, seldom or never perspires, and may take on a yellowish tint; it presents swellings, and the mucous membranes also may be swollen. There is a bright red flush in the malar region, due to dilatation of capillaries and veins. Swale Vincent has found that the elements of the connective tissue of the derma are torn asunder, while the fibres are the seat of a hyperplastic process, and the cell nuclei and the fibrils of the gelatinous substance between the fat lobules are multiplied. The skin as a whole looks transparent, as though saturated with a semi-fluid substance. The hair of the scalp becomes scanty, the pubic and axillary hair, with the eyelashes and eyebrows, often falls out; in many cases the

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teeth are brittle and carious. As these signs disappear under the administration of thyroid preparations, there is *prima facie* ground for expecting benefit from the same treatment in conditions presenting more or less resemblance to them, but not associated with myxedema, such as psoriasis, alopecia, ichthyosis and xerodermia. That expectation has been abundantly justified by experience. So often, indeed, have I during the last two years found the use of thyroid extract followed by improvement in these and other conditions that I now make it a routine practice, in examining patients suffering from chronic skin affections of which the causation is not known, to palpate the thyroid. If the gland be smaller than usual a trial of thyroid extract is suggested; if there be marked hypertrophy, thyroid medication is contraindicated. It has, however, to be remembered that thyroid insufficiency may be due not to atrophy of the gland but to replacement of the vesicular substance by interstitial growth. Moreover, it is probable that thyroid hypertrophy is sometimes compensatory rather than morbid, the result of an effort to restore secretory equilibrium that has been disturbed by failure of some other ductless gland. Cases are recorded in which thyroid treatment has abolished cutaneous symptoms associated with thyroid excess; such cases are examples of what French authors designate *l'instabilité thyroïdienne*. It is necessary, therefore, to be on one's guard against hastily concluding that a moderate degree of thyroid hyperplasia is an indication against the use of thyroid extract.

ITCHING AFFECTIONS.

In no skin affection has thyroid medication given better results than in *psoriasis*. The failures that have been reported by myself and others are explained by the fact that formerly there were no data for determining the cases to which the remedy was appropriate. My recent experience has led me to the conclusion that one of the secrets of success in the employment of thyroid extract, as of other ductless gland preparations, consists in selecting for its administration cases in which the skin affection complicates other conditions in which this remedy is indicated. In obesity, in infantile wasting, in a certain type of chronic rheumatism, both articular and muscular, in osteomalacia, rickets, and delayed union of fractured bones, in hemophilia, etc., thyroid preparations are of proved utility and whenever cutaneous affections are found associated with such conditions as

these, there is a presumption in favor of thyroid treatment. The association may, of course, be fortuitous, but on the whole it is more likely that the morbid process in the skin is an expression of the constitutional condition. Thus I have found thyroid extract specially efficacious in psoriasis associated with adiposity. In the case of a woman, aged 32, who also displayed the mental symptoms of myxedema, under a course of thyroid extract and arsenic the psoriasis entirely disappeared, the adiposity diminished, and the mental symptoms and general health were greatly benefited. Arsenic alone had been employed without avail; there can be no doubt, therefore, that the improvement was due, mainly at any rate, to the thyroid extract. This is but one of a series of somewhat similar personal cases in which the treatment has proved to be successful. Léopold-Lévi and de Rothschild report cases of psoriasis associated with chronic rheumatism in which the psoriasis completely disappeared under thyroid treatment. In psoriasis generally my experience is that the treatment is more suitable for chronic than for acute cases; and I agree with Radcliffe Crocker and with C. E. Sajous that thyroid extract should not be exhibited until the eruption is fully developed. Stelwagon, while holding that it has but a limited sphere of usefulness in psoriasis, allows that it has been of service in a few instances in which other agents had failed, and he regards it therefore as a reserve remedy for trial in rebellious cases. In one such case in which it was employed with little hope of success, Sir Clifford Allbutt was agreeably surprised to find that it produced rapid and complete cure. The effect produced consists not only in lessening or abolishing the irritation, but also, it would seem, in stimulating the epidermal layers, so that the degenerate epidermis scales off and is replaced by healthy epidermis.

This is not the only itching affection in which thyroid treatment has been used with success. Obstinate cases of *pruritus* have proved amenable to its influence. In *eczema* I am able to report most encouraging results. Unlike psoriasis, this affection responds to it not only in chronic but also in acute forms. The most responsive cases are those in fat subjects, and those, again, in which the eczema is associated with xerodermia. In cases belonging to both these groups I have found it to answer exceptionally well. Léopold-Lévi and de Rothschild record three cases of eczema associated with thyroid symptoms which were

cured or ameliorated by thyroid treatment; they also refer to a case reported by Parhon and Papinian in which eczema complicating chronic rheumatism disappeared under the same treatment. Marbé reports two cases of eczema cured by thyroid. Eason has successfully treated cases of eczema in young children with thyroid, and I have employed it with advantage in such cases. In several cases of infantile eczema, especially in fat babies, I have had equally satisfactory results. Moussous has found the treatment to answer well in seborrheic eczema of the scalp.

DYSTROPHIES OF THE SKIN.

Ichthyosis, a malformation of the epidermis, was one of the affections in which thyroid extract was used with advantage in the early days of cutaneous organotherapy by Byrom Bramwell and by Arthur T. Davies. Darier counsels its prudent use in such cases. Stelwagon can only say that it deserves a trial. My own recent experience has been distinctly more favorable. I have used this agent in a number of cases, and in none without benefit. One in particular may be cited because of its inveteracy. The patient was a lady of 25, who had long-standing xeroderma of the palms, elbows and knees, with severe seborrhea of the scalp, scanty hair and dry skin, the general picture resembling that of myxedema. Under a combined course of thyroid extract and arsenic all the symptoms, notably the seborrhea of the scalp and the dryness of the skin, were much abated and the general health strikingly improved. Favorable results are also reported by Weill, Mouriquand and Barth.

In *Darier's disease* there is ground for believing that thyroid is indicated, since it is associated with cellular degeneration, and is not improbably, as Audrey and Dalous hold, an expression of dystrophy of the whole epidermis. Darier himself has suggested that this remedy be tried, though not to the exclusion of local measures.

In *scleroderma*, again, there is a presumption in favor of the efficacy of thyroid, for it has been held that the changes in the derma are the result of perversion of nutrition analogous to myxedema, and Ehrmann has advanced the view that they are the response to an autoinfection commencing in the thyroid body, while Pedrazzinni found that of five cases the thyroid was small and atrophied in four. Sir William Osler, in 1898, did not go beyond saying, from his own experience in six cases and from results recorded by others, that thyroid treatment in this condition might "be tried with-

out harm." Later reports are by no means unanimous, but there is a rather considerable body of testimony in its favor, among others from Lancereaux and Paulesco, Lustgarten, Ménétrier and Bloch, Picko, Jakimoff, Schanberg and McMaster. Grünfeld and de Kornfeld have found thyroid treatment beneficial in scleroderma, even when associated with Grave's disease. Léopold-Lévi and de Rothschild explain this result by the suggestion that Grave's disease and scleroderma sometimes evolve upon a *terrain* of thyroid insufficiency. Of nine cases of scleroderma which they themselves submitted to thyroid medication the treatment was finally successful in five, but it had to be perseveringly applied.

C. J. White of Boston has reported great improvement from thyroid treatment in a case of *acanthosis nigricans*. This affection, of which the pathology is not understood, may be referred to here; for although it is sometimes included among new growths it was first designated by Darier *dystrophie papillare et pigmentaire*.

KELOID.

Keloid appears to have been first submitted to thyroid treatment in the United States by J. William White, who observed a lessening of the growth under its influence. Stelwagon employed it in several cases, in one of which there was material diminution of the growth. In my experience it is distinctly useful in this affection and I have been especially struck by its influence in alleviating the pain which is not infrequently a symptom of keloid.

WARTS, ACNE AND RHINOPHYMA.

Occurring as they do most commonly in children, and tending to disappear at puberty, *multiple warts* are possibly an error of development. Whether this be so or not I have repeatedly found them disappear under thyroid medication. *Acne vulgaris* is another affection of childhood or adolescence which, in my experience, responds well to thyroid extract. In one case, that of a boy of 16 who had overgrown his strength, after a month's treatment the acne was considerably less, while the accompanying seborrhea of the face and scalp had entirely cleared up and the general health had much improved. I have had equally satisfactory results in a number of other cases. Thyroid treatment is obviously indicated in *acne rosacea* occurring as a result of flushing in what, for lack of a better designation, I may term the pseudo-myxedema sometimes associated with the menopause in fat women, who become dull and

lethargic and depressed. In such cases I have found that adiposity, the mental symptoms, and the rosacea have all alike responded to the treatment. Léopold-Lévi and de Rothschild report several cases of acne rosacea and acne vulgaris which were cured by thyroid treatment. In one, in which the skin affection was associated with menstrual irregularity, corpus luteum extract was combined with the thyroid treatment. A remarkable case of cure of *rhinophyma* after three months' thyroid treatment is reported by Dyer of New Orleans.

CUTANEOUS TUBERCULOSIS.

Lupus vulgaris is one of the affections in which thyroid treatment was first employed by Byrom Bramwell. In 1898 Pearce Gould exhibited to the Clinical Society of London a woman of 47 in whom long-standing lupoid ulceration of the face, with tuberculous lesions in other parts, had completely healed over after three weeks' administration of thyroid colloid. Radcliffe Crocker is another of those who have reported favorably of thyroid medication in lupus. Pringle has declared that it produces results little short of marvelous. According to him the cases which make the best response are those in which there is marked hyperemia or inflammation. Both in lupus and in tuberculosis of the skin (*scrofuloderma*) I am able to report favorably of the treatment.

CUTANEOUS SYMPTOMS OF GRAVES'S DISEASE.

In exophthalmic goitre, generally held to be due to excessive or perverted functioning of the thyroid, the cutaneous symptoms are the reverse of those met with in myxedema: instead of coldness, dryness and scaliness there are heat and moisture; pigmentary changes are not infrequent; and there may also be pruritus, factitious urticaria, and purpuric erythema; but in both conditions there may be loss of hair and atrophy of the nails. In Grave's disease thyroid treatment is, of course, contraindicated; but there are cases on record in which cutaneous symptoms associated with some degree of overaction of the thyroid have been benefited by the judicious administration of thyroid extract. Those are cases, probably, of the "thyroid instability" referred to above, in which the thyroid makes an effort to compensate the defective action of some other gland.

AFFECTIONS OF THE HAIR.

The influence of the thyroid gland upon the growth of hair is unmistakable. In

myxedema, as already noted, the hair of the scalp becomes scanty, and the eyelashes and eyebrows, the pubic and axillary hair, often fall out, while under thyroid treatment there is a return to the normal. Hertoghe records a case of entire baldness in myxedema, followed by complete restoration of hair after the use of thyroid. On the other hand, in cases of thyroid excess there is sometimes hypertrichosis, manifesting itself in superabundance of growth, exaggeration of length, and growth in unusual situations, although in Graves's disease the hair often falls out, as in myxedema. The hair of the face also may be affected by thyroid irregularity; with thyroid insufficiency the hair of the beard and moustache may fall, or its development may be retarded; with thyroid excess, spontaneous or due to medication, there may be growth of hair on the face in women, or black hairs appear in the light-colored beards of men. The color of hair, too, is influenced by the thyroid, as is proved by return to the normal under thyroid treatment in cases of premature grayness. Examples of the effect of thyroid treatment upon the growth and color of the hair in such affections as chronic rheumatism, scleroderma, neurasthenia, migraine, and asthma, associated with various degrees of thyroid irregularity, are reported by Léopold-Lévi and de Rothschild.

There is reason to believe that the pituitary and the adrenals take part in the trichogenic function. Thus in hyperpituitarism there is marked hypertrichosis, while in hypopituitarism, though the hair of the scalp may not be affected, except in cases commencing in adult life, that of the axillae and pubes may be almost entirely lacking, or in males may conform to a feminine type of distribution. A case reported by Bulloch and Sequeira seems to support the view that there is some relation, stimulative or inhibitory, between the functioning of the adrenals and the growth of hair. The patient was a girl of 11, who, normal up to the age of 10, then began to show precocious general sexual development, evidenced by increase in her size and bulk, by the onset of menstruation, by rapid maturation of the mammary glands, and by the growth of hair on pubic and face and axillae. All this time a tumor was growing in the abdomen, which was found *post mortem* to be a malignant hypernephroma. Their researches brought to light a number of similar cases, in which carcinoma or hypertrophy of the suprarenals was attended by precocious sexual development, and also cases in which

suprarenal atrophy was associated with non-development or disappearance of pubic hair and by genital hypoplasia.

It has long been known that the growth of hair is also influenced, directly or indirectly, by the sexual glands. Arthur Keith, in his masterly little book on "The Human Body," remarks that in elderly women the withdrawal of the sexual secretion seems to allow the forces of growth to assert themselves: hence the growth of hair on the faces of elderly women. This ingenious suggestion finds support in the fact, observed by Aristotle, and confirmed by Sabouraud as the result of inquiries made in Constantinople and Cairo, that eunuchs do not become bald. Léopold-Lévi and de Rothschild incline to the view that the thyroid chiefly influences the hair of the scalp, and the sexual glands the pubic and axillary hair, and the beard. The whole subject needs much further investigation.

AFFECTIONS OF THE NAILS.

Both in myxedema and in Graves's disease, and also in the intermediate degrees of thyroid disorder, the nails, as well as the teeth, undergo degenerative changes. Cases in which thyroid treatment exerted a favorable trophic influence upon the nails are recorded by Léopold-Lévi and de Rothschild. The new part of the nail, nearer the matrix, became normal in color and thickness and texture, and, as is observed in convalescence from some acute affections, there was a furrow between the old part and the new. The number of such cases is not considerable, but they are sufficient to encourage the use of thyroid treatment wherever unequal affections not known to be of parasitic origin are associated with thyroid disturbance.

In hypopituitarism also there is dystrophy of the nails. They are frequently small, thin, and imperfectly developed; and Crowe has noticed that they do not show the crescents at their base.

PIGMENTATION.

There can be little doubt that the coloration of the skin is influenced by several of the internal secretions, and also, it may be, by the liver and the abdominal sympathetic. It is significant that, as Rolleston has noted, the pigmentation in Addison's disease is an exaggeration of the normal, and occurs, therefore, on the face, the neck, the hands, the anterior folds of the axillae, the nipples, the perineum, and the genitals, while in more advanced cases the mucous membranes may become pigmented. There is

pigmentation also in hyperpituitarism, but it is often accompanied with asthenia and low blood pressure, which suggests that it may be due to adrenal insufficiency rather than to excessive functioning of the pituitary. The familiar pigmentary signs of pregnancy suggest that the sexual secretions may be concerned in normal coloration. There is evidence also that the thyroid is not without influence in this process. One of the signs of myxedema is the yellowish tint which the skin may present, and Lancereaux and Paulesco, and others have found that abnormal pigmentation is beneficially affected by thyroid treatment. In leucodermia favorable results from thyroid treatment are recorded, but the negative results recorded by other authors suggest that a careful selection of cases is necessary. The treatment appears to answer best in diffused cases.

Indications are not wanting that the rôle of the thyroid in coloration is of a regulative character. Arbuthnot Lane has described the pronounced pigmentation met with in cases of alimentary toxemia, beginning in the eyelids and thence spreading gradually over the face. The neck becomes first brown and then almost chocolate-colored. The skin of the abdomen, the thighs, the axillae, and that covering the spinous processes of the vertebrae grows progressively darker, and on these surfaces areas of a still darker staining may develop. This observer also calls attention to the changes the thyroid undergoes in cases of intestinal toxemia. In one case, in which the patient had for eight years suffered from an enlarged thyroid, it was obvious a few days after resection of the large intestine that the gland was diminishing in size, and by the time she left the hospital it was but little larger than usual. The case does not stand alone, for he had noticed the complete disappearance of symptoms of thyroid excess in other patients after operation for intestinal stasis. Such cases suggest that the thyroid may hypertrophy in its effort to antagonize the intestinal toxins to which in these cases the abnormal pigmentation is probably due. Possibly it is in this way that the effect of thyroid medication in improving the complexion is to be explained.

THYROID DOSAGE.

So powerful an agent as thyroid extract must obviously be used with great caution, and its effects closely watched. As a rule I begin with a 2½ grain tablet, to be taken at bedtime, and after a few days double the dose; then, if the remedy be well borne, a

tablet of the same strength is taken, in addition, after breakfast, and, later, another after dinner, and so gradually a maximum of 10 grains per diem is attained. For infants I begin with $\frac{1}{4}$ grain a day, increased to $\frac{1}{2}$ grain, and occasionally to 1 grain. Experience is proving that small doses are as efficacious as the larger doses formerly given, and it is obviously desirable to run no avoidable risk of evoking symptoms of thyroidism, such as rapid pulse, nausea, headache, lumbar pain, restlessness. On the appearance of such symptoms the treatment must be at once suspended or the dosage diminished.

In cases treated with thyroid in which arsenic would be used, as in psoriasis, I usually employ the two agents together, and have found the combination answer admirably. I am glad to find myself in agreement on this point with Ewald and with Gauthier.

THE PITUITARY BODY AND THE SKIN.

That the skin and its appendages are subject to the influence of other ductless glands than the thyroid might have been anticipated from the interaction that has been proved to exist between these bodies, as well as between them and certain organs of external secretion—the testis and the ovary, for example—which also form internal secretions. As the result of this interaction there may be simultaneous functional disturbances in several organs of internal secretion, and thus may arise the clinical picture which has been designated pluriglandular or polyglandular insufficiency. In seeking for the causes of cutaneous affections the dermatologist must be prepared to take account of the pituitary body. The thyroid is so often and so greatly affected in acromegaly, and the pituitary in myxedema and after experimental thyroidectomy, as to suggest not merely a complementary relation between these glands when either is the subject of disease, but even some measure of normal interaction—a suggestion which finds support in their histological resemblances. Harvey Cushing, in considering the relations between the pituitary and the thyroid, points out that definite alterations in the thyroid have been reported by many observers in animals from which the hypophysis had been experimentally removed, and that in 24 acromegals Furnival found only 5 thyroids that were normal, while Schöneman, in 85 cases of goitre, observed marked alterations of the pituitary in 84. In acromegaly there is increase in the size of the hair follicles and of the papillae, and,

as the result of enlargement and abnormal activity of the secretory glands, the skin becomes moist and greasy. There is also hyperplasia of the connective tissue of the subcutis, which may involve the muscles, and while the process of hyperpituitarism is active there is, as is mentioned in an earlier paragraph, an unusual degree of hypertrichosis, strikingly exemplified in one of Cushing's illustrated cases. The transition from hyperpituitarism to hypophyseal insufficiency is attended by a very slow but unmistakable retrogression of the cutaneous symptoms. Just as the condition of the skin in Graves's disease is the exact reverse of that in myxedema, so in primary hypopituitarism the cutaneous changes are the opposite of those in acromegaly. Cushing found that in all his patients affected with primary hypopituitarism, except the older ones, the skin was "smooth, transparent, and notably free from moisture." In some it had an infantile smoothness, such as might suggest a subcutaneous edema, though there was no pitting on pressure.

In connection with the pituitary I may refer to the rapid growth of the long bones which often follows typhoid and many other infections in young adolescents, and which comes under the notice of the dermatologist, because of the patellar and other striae produced by the tension to which the skin is subjected. In one of my own cases—that of a girl of 15, who had had scarlet fever—there were linear streaks on the thighs, abdomen, and breast, suggesting a general skeletal overgrowth. Jean Chanal has suggested that the skeletal overdevelopment is due to bacillary stimulation of the epiphyses, but I agree with Cushing that it is more likely to be the result of a functional hyperactivity of the pituitary, which sets free in unusual quantity the hormones that stimulate growth.

THE THYMUS AND THE SKIN.

In view of the relation subsisting between the thymus gland and the sexual system, it is possible that to irregularity in the functioning of this gland may be due some affections of the skin that occur specially in childhood and adolescence. There is now reason for believing that the thymus continues to function regularly until puberty, and it has been found that in castrated animals the gland does not at puberty undergo hypoplasia. Although its secretion has not been definitely isolated, there is much to be said for the view that the thymus furnishes secretion which is of service to the economy while the reproductive organs are

undergoing development. Some cases of acne, therefore, may possibly be due to insufficiency or excess of its secretion. Similarly there appears to be some connection, as Sabouraud has suggested, between large and active sebaceous glands and over-activity of the testicle; this may account for the frequency of seborrhea in virile and hairy men and its rarity in women, who when the subjects of it, are generally of the masculine type. It is significant that acne in women often coincides with the menstrual periods.

THYMUS, PITUITARY AND SUPRARENAL EXTRACTS IN SKIN DISEASES.

Neither thymus nor pituitary nor suprarenal preparations have yet been extensively used in dermatology. But I have employed thymus gland extract with advantage in *acne* associated with enlarged thyroid and rapid heart, and have had encouraging results from pituitary gland extract, and also from suprarenal extract, in *persistent urticaria* and *angio-neurotic edema*, conditions in which Ratvitch and other French authors report improvement under thyroid treatment. I have also found benefit to follow the use of suprarenal extract in *lupus erythematosus* possibly owing to its influence upon the vasomotor centres. This condition is amenable to physiotherapeutic methods—to radium and carbonic acid snow; but it is not a merely local affection, and when the lesions disappear under local treatment there is always the possibility of recurrence to be reckoned with. It is desirable, therefore, that further trial be given to any agent which holds out the promise of beneficially affecting the constitutional condition.

UNSOLVED PROBLEMS OF DERMATOLOGY.

The influence which the thyroid, the pituitary, the thymus, and other glands exert on metabolism and growth, and so on the nutrition of the integuments and their appendages, suggests that further knowledge of their nature and functions will help to solve some of the many perplexing problems of dermatology. Bacteriology has accounted for not a few skin diseases, and vaccine therapy and serum-therapy have now a recognized place in dermatological therapeutics; but there is still a disconcertingly long list of skin affections of which the cause is unknown and the treatment purely empirical. May it not be that of some of these the explanation will be found in overaction or underaction of glands that form secretions at once so po-

tent and so difficult of analysis? The facts that animals from which the hypophysis has been partially removed betray diminished power of resistance to infections, and that pituitary hyperplasia has been found associated with bacterial intoxications, may possibly prove to be charged with significance. It is conceivable that irregularity of this or other organs of internal secretion may be the direct cause of certain obscure skin diseases, and that in others it may induce the predisposing condition which is the opportunity of bacterial or other pathological influences. Thus, too, may possibly be explained the tendency of so many skin affections to recur after the lesions have disappeared under empirical treatment.

I will not pursue these speculations, tempting as they are. But I venture to think that the results yielded by organotherapy in a considerable number of skin affections are sufficient to warrant a more extensive use of this method of treatment in dermatology. It was by the experimental use of thyroid extract, for example, in such affections that we acquired the knowledge that now enables us, in some measure, to select the cases suitable for its exhibition, and only by the further use of this and other preparations in the same spirit, guided largely by the principle of analogy, will our knowledge be extended. That animal extracts must be employed with circumspection need not be said; but their effects are now tolerably well understood, and those who are practiced in their use will be at no loss to recognize the conditions in which they are contraindicated.

HYPERIDROSIS: ETIOLOGY AND TREATMENT*

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"HYPERIDROSIS is a functional disorder of the sweat glands characterized by an excessive secretion of sweat" (Schanberg), and is classified according to Weidenfeld, of Vienna, as hyperidrosis localis, hyperidrosis generalis, hyperidrosis universalis (rare). Again, under the head of hyperidrosis, he speaks of eczema hyperidrosium, recognizing two subdivisions (a) dysidrosis, and (b) eczema in hyperidrosis.

Examples of localized sweating are familiar to us all, occurring on the palms, soles, forehead, eyelids, nose, cheeks, axilla, genitalia, etc. Hyperidrosis nudorium, as

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the term implies, is present in the axillæ when a patient, for example, undresses before a physician (excitement).

The term "universal" in dermatology, according to the Vienna school, is used only when every part of the body is affected; whereas the word "general" is applied to designate that although most of the body may be involved, healthy skin is observed between the diseased areas.

Generalized hyperidrosis, as well as the universal, is symptomatic in character. Weidenfeld considers the latter rare, yet both are seen in such diseases as acute rheumatism, malarial fever, tuberculosis, night sweats, typhoid, etc.

Hyperidrosis paradoxica may occur with fever or with a subnormal temperature, and is observed in nervous affections and spinal cord lesions.

Eczema hyperidrosorum occurs on the palms of the hands and soles of the feet. From excessive sweating, small or larger vesicles may be produced, when it is known as dysidrosis or pompholyx, the characteristics of which are grouping, all lesions are of the same size, no redness, and hyperidrosis (Weidenfeld).

In contrast to this, we have "eczema in hyperidrosis" (a hyperidrosis complicated with eczema), having the following distinguishing features: Dissemination of the vesicles, which vary in size, redness, hyperidrosis and reflex eczema (Weidenfeld).

Like the general and universal varieties, unilateral hyperidrosis scarcely belongs to the domain of dermatology; but when present should excite suspicion of a disease of the sympathetic system (Sahli).

It is most frequently found in pneumonia and may be found in various conditions dependent upon reflex origin from the pneumogastric nerve; aneurysm, hemiplegia of cerebral origin (Sahli); and peripheral facial paralysis (Köster).

ETIOLOGY.

The disease is of nervous origin, central or peripheral. The vasomotors, the ganglia or the nerves governing the sweat glands may be involved. Again we have internal and external factors.

Internal factors. 1. The glands themselves may be involved. 2. Diseases of the heart. 3. Anemia. (Both these factors cause hyperidrosis by insufficient oxidation.) 4. Nervous. It may be of purely nervous origin and may be seen in such diseases as syringomyelia, neurasthenia or reflex, as from pain. 5. Diseases of the internal organs. This is best exemplified in colic from renal calculus, gallstones, etc. 6. Psychic, as from

fear of pain. 7. A local condition which frequently is the cause of hyperidrosis is flatfoot.

External factors. 1. Pilocarpine may cause hyperidrosis by action on the glands or spinal ganglia. 2. All arsenic preparations, as the trioxide, salvarsan, etc.

TREATMENT.

General. As in all other conditions causal treatment is the primary object. It is not within the domain of the dermatologist to prescribe general treatment, excepting at times for the neurasthenic and anemic patients, such remedies as tonics, hematinics, hydrotherapy, etc.

Internally, hyperidrotics may be used, such as atropine or agaricin (five to ten milligrammes in pill form, twice daily), never in larger doses, since the drugs must be used for some time.

Local. The sweat glands, as well as the blood-vessels, must be influenced, and this is accomplished by astringents and anti-hyperidrotics.

1. Astringents. These include the organic acids, acetic, salicylic, tannic; and the inorganic acids, nitric, sulphuric, boric.

2. Antihyperidrotics. Of these formaldehyde solution, unguentum diachylon of Hebra, alum and bismuth subgallate are frequently employed.

Chromic acid. A concentrated solution is applied by painting on lightly for three or four days. This causes a superficial slough, followed in three or four days by small scales, and complete exfoliation in five to eight days. It may be necessary to repeat this procedure. It should also be remembered that this drug stains yellow or brown.

Salicylic acid or tannic acid is used in the strength of five per cent. in starch, forty parts, and talc, sixty parts. These are very good, but not as rapid as the chromic acid treatment, taking eight to fourteen days for a cure. After thorough washing and drying of the feet, the powder is applied inside the shoes and stockings. It is essential to have frequent changes of both shoes and stockings. The latter should be either silk or woolen, but never cotton. Here we may also mention the correction of flatfoot, when necessary.

Alum acts hygroscopically and also by its acid properties, alum being the double salt of potassium and aluminum sulphate. It is applied in the same way as the salicylic powder.

The diachylon ointment of Hebra is of especial value in the presence of eczema, being spread thickly on linen, applied, and

then bandaged. These applications are changed daily and in eight to fourteen days a cure may be expected.

Oppenheim, of Vienna, is trying a new treatment. In order to prevent the acid formation, and thereby dermatitis or eczema, he uses alkaline powders:

Sodii Bicarbonatis 1 Gm.
Magnesii Oxidi 2 Gm.
Amyli 10 Gm.

M. ft. pulv.

This is dusted into the stockings in the usual manner. It does not prevent hyperidrosis.

When eczema is not present, the following formula may be used:

Formaldyehydi Sol. 5 to 10 Cc.
Alcoholis 100 Cc.
Glycerini 2 Cc.

M. S.: To be applied twice daily.

For the treatment of cheiropompholyx, Brandweiner, of Vienna, recommends, after washing with warm water, the application of

Acidi Salicylici 6 Gm.
Alcoholis 200 Cc.

M.

This is permitted to dry on the parts which are then powdered with

Acidi Salicylici 5 Gm.
Talcii
Zinci Oxidi 25 Gm.

M.

Bismuth subgallate is a very good and efficient powder. It is simple in its use, being employed in all the dermatological clinics in Vienna, in full strength or with talc or starch.

Where the vasomotors are at fault, hot foot baths, as hot as the patient can tolerate, act as an antihyperidrotic by contracting the vessels. Following the bath the parts should be thoroughly dried and either the formaldehyde solution or the salicylic or tannic powders are applied.

Freund, röntgenologist to the Finger clinic, recommends the x-ray for hyperidrosis; but only after continued repetition of the treatments are the glands destroyed and the hyperidrosis cured.

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BENZOYL CHLORIDE AND NASTIN IN LEPROSY

Minett in an excellent article on the treatment of leprosy draws the following conclusions: (1) That nastin has apparently very little beneficial effect on cases of leprosy; (2) a solution of benzoyl chloride in oil shows a slightly higher percentage of improvement than nastin; (3) anesthetic cases of leprosy run a definite course, after which the disease seems to die out, leaving the patient no longer infective; (4) these cases recover sensation after a time in areas

previously anesthetic; and after self-amputation only scars remain. This is a natural process and takes place without any treatment whatever. It is not apparently influenced by either nastin or benzoyl chloride; (5) nodular cases do not tend to improve naturally as above, except in very rare instances; nor do they appear to be affected appreciably by either nastin or benzoyl chloride; (6) the so-called destruction of bacilli is a natural process varying considerably and does not appear to be influenced by nastin or benzoyl chloride; (7) the variation of the amount of destruction of bacilli observed is of limited value as an indication of the effects of treatment; (8) benzoyl chloride in petroleum oil is extremely valuable as a nasal spray or a paint for ulcerating surfaces, it quickly renders the discharge free from the presence of bacilli; (9) its regular use for this purpose is strongly recommended in leper asylums.—*Jour. Tropical Med. and Hyg.*, May 1, 1913.

EMETINE IN AMEBIC DYSENTERY

R. Lyons of New Orleans, impressed by the rapid results of Rogers' emetine injection treatment for amebic dysentery in India, has utilized it himself in six cases which he reports. All but one recovered and this patient should not be counted as he was hopeless from the first. The average length of treatment with emetine until stools became normal was nine days in the other five cases, and he thinks it would have been still shorter had the ampules of emetine been employed throughout. The largest dose used was three-quarters of a grain and no ill-effects were noted from this dosage. The average total dosage was 2.6 grains, which is a little larger than that of Rogers. The preparation was made up by a local druggist, and the alkaloid emetine caused at times a little irritation and infiltration on account of the slight excess of acid. The advantages of the subcutaneous injection of emetine treatment are summarized by Lyons as: 1. Simplicity and ease of administration of the drug; 2. Absence of pain, vomiting and depression; 3. Accurate dosage (no loss through the bowels); 4. Rapid absorption and effect; 5. Reliability of the product (hydrochloride). While the time which has elapsed is yet too short to enable one to speak with absolute certainty as to the cure, he believes that the results are highly suggestive and that we have in this an ideal method of treating amebic disease.—*Jour. A. M. A.*, April 19, 1913.

Progress in Materia Medica and Therapeutics

GOLD SALTS IN MALIGNANT TUMORS

Experimental studies upon the effects of various gold salts on the malignant tumors of animals have been made by C. Lewin. He employed gold and sodium chloride, colloidal gold and gold and potassium cyanide intravenously. The effects of these gold salts were very pronounced in the carcinomata of mice. After as few as two intravenous injections, degenerative changes are very apparent; hemorrhages take place into the tumor and the specific cells become necrotic. After three or four tumor injections, even hard tumors may be converted into cystic structures filled with cell detritus. It seems as if the gold salts had a specific toxic action upon the capillaries of the tumor and not upon the tumor cells, as has been claimed for other metallic salts. The capillaries of tumors are particularly vulnerable since they are the most recent in the organism and probably have insufficient resisting powers owing to their rapid growth. —Berl. klin. Woch., March 24, 1913.

BENZOL IN LEUKEMIA

A case of true myelogenous leukemia with 56,000 leucocytes to the cubic millimeter but enormously enlarged spleen was treated by W. Neumann with benzol according to the recommendation of Koranyi. The drug was given in doses of 0.5 Gm. in gelatin capsules, diluted with an equal amount of olive oil, beginning with one capsule twice daily and increasing to two capsules four times a day. After the first dose there were chill and high fever but the subsequent doses were well tolerated. The number of white cells diminished rapidly but no particular form of cell was affected more than any other. The splenic tumor decreased in size and the general condition of the patient improved. After a treatment lasting 36 days there were only 5,300 white cells and the spleen was reduced to one-half its former size. The patient felt well in every way. Unfortunately, the effect of the drug continued after medication was stopped. The leucocytes dropped to 200, diarrhea, fever and profuse epistaxis appeared and finally a hemorrhagic stomatitis and rhinitis set in. The patient died 38 days later and at autopsy the lesions of benzol poisoning and not those of leukemia were found. Benzol seems to be excellent

in leukemia but great care is necessary. The drug should not be given too long but should be discontinued as soon as the white cells show a tendency to diminish in number.—Therap. der Gegenwart, Feb., 1913.

LECITHIN AND CHOLIN IN TUBERCULOSIS

Mehler as Ascher have pointed out that lecithin, as well as some of its constituents (cholin, glycerophosphoric acid), has considerable bacteriolytic power. In their investigations the authors have discovered that certain cholin salts show but little bacteriolytic power in the test tube but that when ingested in certain combinations cholin is split off and may exert bacteriotropic and bacteriolytic properties. Certain cholin salts can determine a typical tuberculin reaction in the florid tuberculosis. Cholin, to some extent, acts the same toward bacteria in general so that the action is by no means specific for tuberculosis. The authors believe that in the future we shall have a series of these substances to use as synergists. Thus already a number of combinations of lecithin with the heavy metals such as gold and copper have been suggested.—Muench. med. Woch., April 8, 1913.

TREATMENT OF ASTHMA

Patients subject to asthmatic attacks should try to prevent new attacks by the proper hygiene of both body and mind. It is just as important for the patient not to think of his trouble as it is necessary for him to remain in the open air a considerable part of the day with proper though not excessive exercise. Many patients are permanently free from their trouble in the mountains. The diet should be carefully supervised and the bowels kept open. The most important drug in the modern therapy of the disease undoubtedly is epinephrine. The effect of 0.5 to 1.0 Cc. injected subcutaneously is often remarkable and is equalled only by a morphine injection. Equally as good results may be seen if the solution is applied directly to the mucous membrane of the bronchi. C. Staebli points out that most of the sprays on the market which the patients can carry with them are inadequate since the spray is too coarse and the fluid does not get

down far enough. He has therefore constructed a special apparatus which is operated by means of a small rubber ball which the patient can easily carry with him. In severe cases the following solution is recommended:

Epinephrine 1:1000	9.0	Cc.
Sol. Atrop. Sulphis.....	0.01	Cc.
Cocainæ Hydrochlor.	0.025	Cc.
Aquæ Dest.	1.0	Cc.

while for the milder attacks the epinephrine solution alone is generally sufficient. The amounts of solution employed in this apparatus are so small that there is absolutely no danger of a drug habit.—Muench. med. Woch., Jan. 21, 1913.

TREATMENT OF INTERMITTENT PYURIA

A. J. Underhill of Baltimore reports two cases of intermittent pyuria diagnosed as due to infection of the prostatic utricle. In each case the posterior examination of the urethra through the endoscope showed the verumontanum swollen and edematous and pus could be washed out from the utricle. The condition was relieved by injections of 1 per cent. silver nitrate and in the second case the same, later replaced by quickly withdrawn injections of 1:1000 solution of liquor formaldehydi. The point of interest in the cases was the intermittent pyuria lasting a day or so and followed by a disappearance of all symptoms during the intervals until sufficient pus accumulated for the pressure to overcome the resistance offered by the adherent opening to the utricle. Another point of interest in the second case is the fact that the ejaculatory ducts opened into the utricle, as spermatozoa appeared every time it was aspirated. It is surprising that the seminal vesicles and the epididymis were not also infected more severely than was the case.—Jour. A. M. A., April 5, 1913.

ETIOLOGY AND TREATMENT OF BERI BERI

Two years ago C. Funk described a method for the isolation of the vitamine-fraction from rice polishings and later he showed that the same method might be successfully used in separating the vitamine fraction from other food stuffs such as milk, yeast, brain and lime juice. He was also able to show that a number of purin and pyrimidin derivatives possess a slightly curative effect.

The author was of the opinion that small quantities of other substances might be present in this fraction, the physiological effect of which would be the resultant of the individual fractions of these constituents.

A fractionation of the yeast extract was therefore carried out. The alcoholic extract of 100 kg. dried yeast was prepared and the total amount of substances obtained was 2.5 Gm. A number of pigeons were treated with this product. Polyneuritis was induced in them by artificial feeding with an exclusive diet of polished rice. After from 10 to 21 days they developed the characteristic symptoms of avian polyneuritis. By a series of controls it was found that the animals in this condition live rarely longer than six to twelve hours, twenty-four hours being perhaps the utmost limit. The product mentioned above was injected into the pectoral muscle in quantities varying from 4 to 8 mg. and in each case a complete recovery was obtained. Before and after treatment the animals were kept on an unchanged diet of polished rice. In spite of that they lived after the recovery for four to six days without any symptoms of neuritis. As the food did not secure a new supply of vitamine, the birds developed neuritis again after the injected substance was apparently used up for metabolic processes. In one of these cases after a new supply of substance a second cure was effected.

We see from these experiments that the initial vitamine-fraction possesses the undiminished curative power of the original yeast extract. As in some cases the change of diet alone (an addition of maize, for instance) is capable of improving very markedly the condition of the sick birds, the fact that an unchanged diet of polished rice was kept throughout the experiment cannot be too much emphasized.

By a further fractionation the author was able to separate the crude fraction into at least three substances, each of which has been carefully purified and analyzed.

These observations have an interesting parallel with the case of pituitary extract, as recently recorded by Fühner, where also in the first instance a crystalline fraction was isolated, which showed the whole physiological action of the gland, but on further fractionation was found to consist of not less than four different substances. Each of these had a specific action, but the effect of the original product could only be obtained by the collective action of all the four substances. It will be interesting to see whether the same is the case with the vitamine-fraction, or whether a single substance plays a preponderating part in the process of cure.

For therapeutic purposes, therefore, the best results may at present be expected by a paraenteral administration of the whole vitamine-fraction, especially in acute cases

which have proceeded too far to be influenced by a change of diet. This fraction which is suggested to be employed contains the active constituents unimpaired of the original starting material, and is free from any harmful substances.—Brit. Med. Jour., April 19, 1913.

THYROID EXTRACT IN STERILITY

It must be regarded as proven beyond any doubt that there are very intimate relations between the ovaries and the thyroid, hence it seemed rational to L. Weil to try the internal administration of thyroid extract in sterile women, with enlargement of the gland. All the three cases observed, conceived promptly. One of these cases miscarried, the other came to term, while the third could not be controlled. The thyroid gland is a secreting organ giving off to the circulation iodized proteids which act as hormones and stimulate distant organs. It seems probable that sterility in many women, where no gross lesions can be found to explain the condition, is due to the lack of this stimulating effect of the thyroid hormones upon the ovaries. The use of some good thyroid preparation is therefore recommended in all cases where local treatment is out of place. This treatment also deserves trial where there is no visible enlargement of the gland since hypertrophy does not necessarily accompany disturbed functions. In all cases, however, it is imperative to examine the seminal fluid of the husband first.—Muench. med. Woch., 42, 1912.

EUCALYPTUS IN PULMONARY TUBERCULOSIS

Good results have been reported by L. G. Pedigo from the use of an ointment of oil of eucalyptus in the treatment of pulmonary tuberculosis. The following is the formula which the author has found most serviceable:

Olei Olive	5ij
Adipis Benzoinati	5vj
Olei Theobromatis	
Olei Eucalypti	āā 5iv

M. F. Unguentum.

A teaspoonful of this mixture is thoroughly rubbed into the skin until it disappears. The author states that practically all of the 15 minims of eucalyptus thus employed reaches the circulation as is shown by the fact that the sputum exhibits the characteristic odor the day following the first inunction. From being yellow and viscid it becomes frothy, white, loose and temporarily more abundant. Within twenty-four hours the temperature usually drops showing a more favorable course and the cough also shows considerable improve-

ment. In place of the ointment, in the summer time the author employs a twenty-five per cent. solution of oil of eucalyptus in cocoanut oil. Favorable results were also obtained with this treatment in breaking up common "colds" and especially in aborting them.—Therapeutic Gazette, March, 1913.

EFFECTS OF STRYCHNINE AND DIGITALIS

In a series of experiments made on healthy students, D. Marvin gave strychnine hypodermically in doses of 1/40, 1/30 and 1/20 grain and digitalis by mouth in a dose of the tincture corresponding to about fourteen minims of a tincture of standard strength. Except in doses of 1/20 grain the strychnine had no effect on the respiration rate. In a dose of 1/20 grain it produced an average increase of one per minute, though in different subjects considerable variation was shown and occasionally there was a drop in rate without apparent cause. The strychnine caused a slowing of the pulse rate and in doses of from 1/30 to 1/20 grain a marked increase in blood pressure.

Digitalis had no effect on the respiration rate but caused a slowing of the pulse rate of eight beats a minute and also a marked increase in blood pressure which reached a maximum in about five hours after which it gradually returned to normal.—Archives of Int. Med., April, 1913.

MEDICINAL TREATMENT OF TUBERCULOSIS

Drugs cannot be entirely dispensed with in the treatment of tuberculosis, particularly when it comes to reducing the fever. According to A. Hecht pyramidon has a pronounced effect here even in small doses; it possesses no specific action upon the disease and in no way does it neutralize the toxins of the tubercle bacillus. Guajacol, on the other hand, undoubtedly destroys toxins to some extent hence is especially valuable in tuberculosis of the bronchial and mesenteric lymph nodes, where there frequently is a pure toxin effect. Applied in the fore of a 10 per cent. salve in petroleum it acts as a specific in the toxic fever of tuberculosis but has much less effect where there are inflammatory changes in the parenchyma of the lungs and still less where there is a mixed infection. The cutaneous application of guajacol is indicated particularly in pediatrics since there is frequently only a lymphatic infection. In adults it may at least be possible to reduce the fever so that the patients can more readily be transferred to a proper sanitarium. According to the author, the following com-

bination is an excellent tonic in all forms of tuberculosis:

Thiocol	10.0 Gm.
Helenin	2.5 Gm.
Sodii Arsenitis.....	0.1-0.15 Gm.
Extr. Strychni.....	1.0-1.5 Gm.

M. F. pil No. 100.

Sig.: Two pills three times daily after meals.

The author states that helenin is by no means a specific against tuberculosis but often is equal to or more effective than creosote. The oral dose is 0.05 Gm., the daily dose 1.0 Gm. It is said to be free from disagreeable or injurious after-effects and may also be given intramuscularly if dissolved in oil of sesame.—Muench. med. Woch., 42, 1912.

TREATMENT OF BASEDOW'S DISEASE

Cases are recorded from time to time in which thyroid gland or the active principle of the thyroid gland relieves the symptoms of Basedow's disease. In these cases it is probable that the condition is one of dysthyroidism rather than one of hyperthyroidism; that is, the thyroid gland elaborates excessive amounts of a secretion which probably differs considerably from the normal secretion. In a great majority of cases of Basedow's disease, however, the thyroid preparations are strongly contraindicated. Preparations of the thymus gland have also been recommended but their value is still *sub judice*. Much better therapeutic results are to be expected from anti-thyroid therapy, particularly in the form of the antithyroidin of Moebius. A. Rubino, in the "Berlin klin. Woch.," March 24, 1913, writes that he has often employed this serum successfully in cases that have resisted all other therapy. The improvement is often remarkably rapid; the goiter, exophthalmos and the tremor become less marked and the tachycardia disappears, even in the very severe cases. At the same time the general condition is far more satisfactory. After effects, such as occur with the thyroid preparations, have not been observed, in fact, the remedy appears to be absolutely harmless. A question that still remains to be answered is whether antithyroidin is actually able to cure the disease for all time. It is certain that the patient may remain well for years after one or more courses of treatment but further observations are necessary to ascertain if the effect is permanent. The author states that there can be no doubt that the therapeutic effects obtained with antithyroidin are better than with any other internal remedy that has been recommended in this disease. The author begins with 10 drops daily, which is

increased to 100 drops daily within 20 days. After a period of rest lasting 4 or 5 days the dose is again diminished to the original 10 drops during another 20 days. It may be necessary to repeat this treatment three to four times and then to give the serum in half doses. For cases that do not react to antithyroidin, surgical treatment will have to be considered. It is as yet impossible to say why some cases react so well to antithyroidin while others are not benefited by internal treatment of any sort. The author is convinced, however, that at present antithyroidin is the most effective internal drug for the treatment of Basedow's disease and allied conditions of hyperthyroidism.

ARSENICAL POISONING AFTER SALVARSAN

Eichler reports a case where severe symptoms of arsenical poisoning appeared after an intravenous injection of 0.5 Gm. of salvarsan. The symptoms were green stools mixed with mucus, incessant vomiting, a scarlatinaform eruption, severe acute renal inflammation and cerebral symptoms. There was no fault in the technique and the water employed had been freshly distilled. Seven days before, the patient had received a slightly smaller dose without the least reaction. The patient was seriously ill for two days but finally recovered. In discussing the case, the author remarks that idiosyncrasy or anaphylaxis seems unlikely but believes that a cumulative arsenic effect was obtained, owing to the fact that the arsenic was retained in the liver. The patient did not feel well before the second injection was given, but this fact was not known to the physician. This case shows the necessity of having the patient constantly under observation when an injection of salvarsan is to be made.—Muench. med. Woch., Dec. 24, 1912.

ETIOLOGY AND TREATMENT OF VERTIGO

A. C. Reed, of Port Penn., Del., says that there are two conditions causing vertigo; one the integrity of the end-organs and the other paralysis of certain ocular muscles. While it is only a symptom its diagnostic significance is important. The indications in any case are to remove the underlying or essential cause and, when this is not apparent or the vertigo is reflex in origin, to use measures for the relief of the symptom. To judge as to the essential cause one must keep in mind a clear classification of the conditions that may produce it at different ages of the patient. In the child transient

vertigo is often due to mechanical causes, but most commonly it is due to a middle-ear infection following the acute infectious fevers. It may also be due to anemia or malnutrition, and occasionally one must consider the possibility of brain abscess or cerebellar tumor. In early adult or middle life vertigo can most often be traced to a vascular or reflex source, such as some disorder of the digestive or genital organs, or to the arterial or myocardial changes. Ocular disturbances causing vertigo are also fairly frequent at these ages, and, of course, mechanical or aural vertigoes may occur. With increasing age the vascular and certain types of reflex vertigo become more common. The vertigoes from reflex irritation are taken altogether most commonly due to irritation in the digestive tract or the pelvis. In treating these a sharp purgative may be given, followed by stimulants and sedatives and such medicines as may effect favorably the trouble in the exciting organs. Neurotic vertigoes are somewhat similar to the reflex ones. They are common in neurasthenia and in certain degrees of nervous and emotional stress. Barany says that the vertigo of neurasthenia is characterized by irregular nystagmus, differing from the quick return of labyrinthine vertigo. Palliative treatment is secondary to thorough and persistent attack on the fundamental neurotic condition. Vertigo from purely vascular conditions or derangements, such as congestion, arterial sclerosis, anemia and other disturbances of the cerebral circulation should be treated according to the vascular underlying condition. Toxic vertigo, as from alcohol or a nephritis, calls for a like management. Auditory vertigo may signify organic disease, and is due to disturbance of the function of the space sense of the eighth nerve. This may be due to slight causes, such as the sudden occlusion of the eustachian tube, deranging the pressure in the tympanic cavity. Of the two labyrinthine vertigo from organic disease is more serious, and Reed quotes somewhat at length from Carrison as to the symptoms and mechanism of these cases. Operative interference is seldom required in purely vestibular vertigo, but rest and quiet in bed are prime needs. The second or paralytic type of vestibular vertigo following vestibular irritation, can be treated by progressive graded movements to re-educate the spatial sense of orientation. Meniere's disease is a term used to cover various forms of auditory vertigo with tinnitus and is always due to labyrinthine disease. Charcot's plan of giving in-

creasing doses of quinine to cinchonism is recommended in the type and sodium salicylate is said to be a good substitute for quinine in such cases. Vertigo from the disturbances of the ocular arc is less frequent than reflex of aural vertigoes, and correction of the refractive error gives relief. Mechanical vertigoes, like seasickness, car-sickness, etc., calls for no special method of treatment. To relieve the symptoms when the cause is not apparent, Reed recommends a purgative, rest, some volatile stimulant, and for internal administration sodium bromide 20 grains, three times a day, is probably the most satisfactory. A mustard plaster on the back of the neck, keeping the extremities warm and contra-irritation with weak mustard bath or hot water bags outside of the blanket and occasionally a slight cautery of the mastoid region may be useful.—*Jour. A. M. A.*, May 17, 1913.

TREATMENT OF GENERAL PARESIS

Despite the brilliant advances made in the treatment of syphilis the outlook in general paresis is no more encouraging at present than it was twenty years ago. A. Westphal points out that there is at present no "cured" cases on record which will stand criticism, for all the so-called "cured" cases were either remissions or the patients had suffered merely from cerebro-spinal syphilis and not from true paresis. Specific treatment often does more harm than good even when, as it is sometimes possible, the positive serum reaction is rendered negative. Even salvarsan has but little effect and many authors even consider it contra-indicated. It is important, however, to use all these drugs where the diagnosis has not been established beyond all doubt, as for example during the early stages of the disease. The induction of an artificial supuration by means of chemicals rubbed into the skin or by tuberculin injections or injections of nucleinic acid may be tried but at best only a remission will result. The only real advance that has been made is in prophylaxis. The author points out the necessity of examining the spinal fluid in syphilitics before pronouncing them cured. The presence of an excess of lymphocytes and a positive Wassermann reaction may belong to the earliest symptoms of the disease and may lead us to continue the treatment and thus check its advance. It has been recently proven by Noguchi that general paresis is a true syphilitic and not a metasyphilitic affection since in a large percentage of cases spirochetæ could be dem-

onstrated in the brain. The reason why the infection here is so resistant to treatment is not known but it is possible that the germs have become so changed in their characteristics that they are no longer affected by specific medication. According to others they are walled off so effectively that the drugs reach them only in very attenuated form.—Berl. klin. Woch., April 14, 1913.

PHOSPHORUS AND COD LIVER OIL IN RICKETS

In the opinion of W. Gessner, infantile rickets is a typical disturbance of metabolism affecting chiefly the metabolism of the fats at a time when under normal conditions the fetal red bone marrow is changed into yellow marrow. Special requirements have to be met at this period and the customary mixtures of cow's milk often prove inadequate. The fat in cow's milk cannot be sufficiently utilized by the organism which then manufactures fat from the carbohydrates ingested. The result is a functional insufficiency of fat metabolism and the necessary energy to convert red into yellow marrow is lacking. The development of the bone is disturbed and rachitis develops. Thus, in the opinion of the author, rachitis can only be cured by giving a readily assimilable fat, such as cod liver oil. The addition of phosphorus to the oil is an advantage since it increases the oxidation processes to a marked degree and rapidly checks the secondary demineralization. Inasmuch as the fats are of the greatest importance for the development of the brain and the spinal cord the nervous symptoms so common in rickets find a ready explanation.—Berl. klin. Woch., April 14, 1913.

HYDROGEN PEROXIDE IN CARCINOMA OF ESOPHAGUS

S. Fradiss confirms the observations of Liebermeister who showed by X-ray and pathological studies that absolute stenosis, anatomically speaking, is never present in cancer of the esophagus or cardia. There is almost always a channel permitting the passage of fluids, no matter what the degree of stenosis. Complete obstruction of this channel only occurs when it is occluded by food material not sufficiently divided before swallowing and by the products of decomposition of the necrotic tumor-mass. In these cases 1 dessertspoonful of 1 to 3 per cent. hydrogen peroxide solution is given every hour. In less than twenty-four hours the stenosis is overcome and in a few days the patients, who had previously been completely unable to swallow anything, can eat purées and even solid food. The distress-

ing subjective symptoms simultaneously disappear. The patients may even gain in weight and recuperate so much as to present a normal appearance. One of Liebermeister's patients gained 18 pounds. The author refers to a case in which 12 pounds were gained in four weeks. The patient then left the hospital, still taking the peroxide; but later he neglected its use for several weeks, with the result that he was obliged to return to the hospital. Upon resumption of the treatment for two weeks 13 pounds were gained. The same cycle of events was then repeated, the beneficial effect of the measure being thereby clearly shown. In scirrhus cancers the peroxide produces little or no effect, but in the other types it constitutes one of the best palliative measures now available.—Monthly Cyclopedia, Feb., 1913.

TREATMENT OF ITCHING SKIN DISEASES

Not very long ago, a German physician claimed that venesection followed by saline infusion exerts an almost specific effect upon certain toxic dermatoses, such as chronic eczema, neuro-dermitis, psoriasis, pemphigus, dermatitis Duhring and urticaria. W. Heuck has faithfully tried this treatment in 20 cases without the slightest result and has even seen considerable aggravation in urticaria. More success can be promised from the injection of normal human serum. Weeping eczema, psoriasis and the simple chronic eczema of adults is hardly improved, a slight improvement can be expected in neuro-dermitis while in pruritis senilis, pruritis cutaneous and universal, pruriginous eczema the treatment is generally very successful. Good results are also reported by the author in urticaria, strophulus infantum, dermatitis Duhring and pemphigus. The intravenous injection is generally to be preferred to the subcutaneous. In some cases, the condition is not improved but is rendered worse by the serum.—Muench. med. Woch., Nov. 26, 1912.

DIGITALIS THERAPY

A. R. Cushny, of London, who has made a study of the effects of tincture of digitalis, squills and strophanthus writes that he has always obtained the best therapeutic results from maximum doses though it was possible to keep up the effect with smaller doses. In most cases the improvement of the circulatory organs was accompanied by loss of appetite, headache, nausea, vomiting and often diarrhea. Digitalis, strophanthus and squills may give rise

to all these symptoms, yet it seems as if the latter two are more prone to give rise to intestinal derangement than is digitalis but they are followed less often by headache and nausea. The emetic effect of all three is probably of central and not of peripheral origin. The drugs were tested very accurately in the following way: A typical case of auricular fibrillation with tachycardia was selected and the preparation to be tested given until the pulse dropped to 65. After 10 to 14 days tachycardia was again present when the second preparation was given in the same way. The proportional therapeutic efficiency of the preparations was as follows: Tincture digitalis 1, tincture squills 2, tincture strophanthus 2 (this applies to the preparations of the British Pharmacopoeia). The best effects were always seen in auricular fibrillation and the general condition of the patient always improved as the pulse slowed. In cases of auricular fibrillation where digitalis does not cause a slowing of the pulse the improvement is not so marked. In 13 out of 16 cases of auricular fibrillation, digitalis had the desired effect. The best results are seen where there is a history of rheumatism particularly in young individuals. Digitalis does not act nearly so well when fever is present or where there are advanced degenerative changes in the heart muscle as in the aged. Though the auricle may continue to fibrillate as before the pulse becomes much more regular than before treatment. If too much digitalis is given the pulse may drop to 40 or 50 and the so-called bigeminal pulse may appear. The first beat here will start from His' bundle and the second from some portion of the ventricle. Cushny states that the slowing of the pulse caused by digitalis is not due to an increase in the inhibitory action of the vagus for if atropine is injected during the period of slowing there will only be a slight increase in the rapidity. It seems as if digitalis acts directly upon the heart muscle though it is as yet impossible to say if the tissues affected are the bundle of His or the ventricle. Strophanthin intravenously slows the pulse in three to four days as much as digitalis in seven to ten days but this slowing is also apparent if atropine is injected at the same time. In cases other than auricular fibrillation the effects of digitalis medication are not nearly so pronounced. The patients certainly improve but it is questionable if this is not due to the rest in bed. A slowing of the pulse is apparent in only 30 per cent and this does not go hand in hand with an improvement in the general condition as in

auricular fibrillation. If the administration of digitalis is continued here, sinus arrhythmia or heart block eventually result. The drug in these cases acts upon the auriculo-ventricular bundle and probably also upon the inhibitory apparatus of the vagus, for in many cases the arrhythmia can be corrected by atropine. In a few cases of quite regular rhythm, digitalis itself gave rise to auricular fibrillation. In none of the cases treated with digitalis could a diminution of the size of the heart be detected, even where the improvement in the pulse and the general condition of the patient was all that could be desired.—Berl. klin. Woch., April 21, 1913.

GANGRENOUS BALANITIS

After referring to the former communication in which he and F. G. Harris described this form of disease and referring to the literature, B. C. Corbus, of Chicago, describes the infection as a specific venereal disease with local and constitutional symptoms varying with the severity of the infection and due to the symbiosis of a vibrio and spirochete, always found together. Predisposing causes are phymosis, wetting the labia or penis with saliva and unnatural sexual relations after alcoholic excesses. It is uncommon in private practice in this country but fairly frequent in dispensary cases. Probably many cases are unrecognized. The spirochete seems to be similar to one found in Vincent's angina and the vibrio probably the same, as Tunncliffe holds. Both forms are anaerobic and are illustrated. Both stain by ordinary dyes but the vibrio is Gram-negative while the contrary is the case with the spirochete. The latter is best seen with a dark-ground illuminator. The ulcers formed are deep with perpendicular edges and are usually mistaken for chancroid as these conditions simulate each other closely and their period of incubation may be the same. The thin, yellowish, whitish discharge and the finding of the vibrio and spirochete should help the diagnosis. The ulcers spread more rapidly and in chancroid the ulcers are usually more multiple. The indolent adenopathy accompanying the balanitis calls for its differentiation from syphilis. In syphilis the incubation period is longer though the two infections may coexist. In doubt, one should defer the diagnosis of syphilis until its period of incubation is passed and in case of mixed infection the characteristic spirochetes can be easily distinguished. In herpes the condition is mild and one fails to find the organisms. As a prophylactic

measure, circumcision should be encouraged; it is impossible for it to occur after that. In mild cases cleansing may be all that is necessary. In other cases in which there is the slightest evidence of phimosis an incision should be made. A natural tendency is to burn out these sloughing ulcers but that is needlessly severe. As the organisms are anaerobic, hydrogen peroxide, which liberates oxygen in contact with organic matter, acts as a specific. The ordinary 2 per cent. solution is sufficient but in severe cases 25 per cent. may be painted on the parts. Several cases are reported. The same condition may occur in the female, as in a recent case of his observation.—*Jour. A. M. A.*, June 7, 1913.

ICHTHYOL TREATMENT OF WHOOPING COUGH

After an experience with it in several hundred cases of whooping cough, Naamé (*Etudes d'Endocrinologie*, 1913) recommends the following formula:

Ichthyolis .....	.5ijss
Glycerini	f. 5ss
Liq. Calcis	f. 5ijss
Ol. Amygdalæ Amaræ.....	gtt. iij
Ol Anisi vel Menthæ Pip.....	gtt. x
Syrupi	ad f. 5iijss

M.

Children up to one year of age are given 4 to 6 teaspoonfuls of the syrup; up to two years, 3 to 4 dessertspoonfuls; three to four years, 4 to 5 dessertspoonfuls; five years and upward, 4 to 5 tablespoonfuls. These doses, especially the smaller ones mentioned, can be exceeded and even doubled in obstinate cases, those of long standing, or those complicated with capillary bronchitis or broncho-pneumonia. The preparation is not toxic and in case an excess is used, will merely bring on slight diarrhea.

The efficacy of the preparation depends upon the length of time the trouble has been present. Where it is administered from the outset the disease is aborted in two or three days. The paroxysms of cough and vomiting, if already present, are rapidly overcome, the case becomes one of simple bronchitis, and the appetite returns. Where the affection has already been present for some time, energetic treatment is required, and the disease yields in from a few to ten or twelve days.

The author objects to the use of sedatives in whooping-cough, stating that though benefit may be evident at night, the condition in the daytime is rendered worse. As adjuvants to the ichthyol in young children, instillations of [weakly] mentholated oil in

the nose should be made. An emetic and a purge at the beginning of treatment will favor the action of the ichthyol, and may be repeated later if a profuse flow of bronchial secretions sets in. The room should be kept well ventilated at all times, though the temperature should not be low. Where enteritis complicates the pertussis, only water should be allowed, but the ichthyol may be continued without hesitation. If broncho-pulmonary complications should appear, mustard baths and antiseptic inhalations should, of course, not be neglected. Finally, if hemoptysis should occur, diphtheria antitoxin should be injected and, in case of failure, hepatic extract also given.

The use of ichthyol had best in all cases be continued for a time after recovery, in order to antagonize the bronchitis—the latter tending to favor a relapse.—*Monthly Cyclopedia*, May, 1913.

ACTION OF DIGIPURATUM ON THE CORONARY VESSELS

F. Meyer gives an account of his investigations upon various drugs on the coronary vessels in living animals. Every suitable cardiac drug should either not affect the coronary vessels or else dilate them. A contraction should never take place. In dyspneic conditions, the drug should have a decided action upon the contractions of the heart muscle but should not interfere with the nutrition of the heart by narrowing the coronary vessels.

The following method was employed by the author: The preparation to be tested was injected into the jugular vein, the blood-pressure was measured on the carotid artery and the circulation of the blood in the coronary vessels then gauged by the dropping of the blood after exposure of the heart. Among other drugs, digipuratum in ampoules was tested in this way. A concentration of 0.1 to 10 was injected. The blood-pressure fell, the amplitude increased and the number of drops increased considerably from about 15 to 22 drops in 10 seconds. Slowly, the amplitude became still higher and, though the blood-pressure dropped still further, the number of drops increased more and more so that they could hardly be counted.

Injectations of digipuratum show a similar effect in hearts that become exhausted but they are again made to contract with saline solution. The amplitude gradually increases and the pulse becomes more regular without a marked increase in pressure.—*Arch. f. Anatomie und Physiologie*, 1912.

Prescriptions

Pulmonary Tuberculosis:

A teaspoonful of the following ointment thoroughly rubbed into the skin is recommended by L. G. Pedigo in the treatment of pulmonary tuberculosis:

Olei Olivæ	5ij
Adipis Benzoinati	5vj
Olei Theobromatis	
Olei Eucalypti	āā 5iv
M. f. unguentum.	

Acne Vulgaris:

Zinci Sulphatis	
Potassii Sulphidi	āā 5ij
Aquæ Rosæ	f. 5xij
M. ft. lotio secundum artem.	
Sig.: Shake well before applying.	

—Brayton.

Dandruff:

In the treatment of dandruff and seborrheic dermatitis of the scalp the latter should be cleansed once a week with tar soap, the lather washed out with water, and when the scalp is dry a portion the size of the end of the thumb of the following cream well rubbed into the scalp with the finger tips:

Sulphuris Præcipitati	5i
Acidi Salicylici	5ss
Unguenti Aquæ Rosæ.....	5i
M. ft. unguentum.	

—Brayton.

Sunburn:

Olei Amygdalæ Express.....	f. 5ij
Ichthyolis	f. 5j
Olei Rosæ	gtt. v
Ung. Aquæ Rosæ.....	5vj
Lanum	5vj
M. Sig.: Apply three times daily.	

Dilatation of Heart:

Ferri Reducti	grn. j-ij
Quinina Sulphatis	grn. j-ij
Pulv. Digitalis	grn. j
Morphina Sulphatis	grn. 1/24
M. f. pil. mitte tales No. xx.	

Sig.: One pill three times a day.

Tinct. Digitalis.....	f. 5jss
Tinct. Cacti Grandiflor.....	f. 5j
Caffeina Citratæ.....	5j
Tinct. Card. Comp.....	ad. f. 5iv

M. Sig.: Teaspoonful, dilute, three or four times a day.

Caffeina Citratæ	5j
Strychnina Sulphatis	grn. 1/3
Sparteina Sulphatis.....	grn. ij
M. f. in capsulas tal. dos No. xij.	

Sig.: One capsule every three or four hours.

Pulv. Scilla	
Pulv. Digitalis	
Caffeina Citratæ	āā grn. xxx
Hydrarg. Chloridi Mitis	grn. v
M. F. in pilulæ No. xxx.	

Sig.: One pill three or four times daily.

—Hughes.

Influenza:

After purgation, the following prescription is of value to stimulate the emunctories and reduce the temperature:

Tincturæ Aconiti	5 Cc.
Spt. Aetheris Nitrosi.....	
Syrupi Limonis.....	āā 50 Cc.
Liq. Ammonii Acetatis.....	ad. 200 Cc.

M. Sig.: One dessertspoonful in a wine glass of water as required.

An equally efficacious mixture is:

Potassii Citratis	25 Gm.
Spt. Aetheris Nitrosi.....	100 Cc.
Aquæ Destillatæ	ad. 200 Cc.

After the disease has passed the incipient stage, the following combination may be prescribed unless there is some specific contraindication:

Codeina Sulphatis	o. 2 Gm.
Acetphenetidini	
Cinchonidina Salicylatis.....	āā 3.0 Gm.

M. Div. in caps. No. xx.

M. Sig.: One capsule to be taken every three hours.

—N. D. Brecht.

Lichen Agrius:

Potassii Cyanidi	grn. iv
Chloroformi	mx
Glycerini	f. 5j
Lanum	5 iij

M. Sig.: Apply two or three times a day.

Scleroderma:

Sodii Glycerinophosphatis.....	5ij
Elix. Aurantii.....	ad. f. 5iv
M. Sig.: Teaspoonful three times daily.	

Phlegmonous Tonsillitis:

Ichthyolis	f. 5iij
Ung. Belladonnae	5ij
Olei Rosæ	gtt. iv
Lanum	5iij

M. Sig.: Apply three times a day externally.

Urticaria:

Amyli	5iv
Ichthyolis	5iv
Albuminis Ovi	gtt. vj
Aquæ	ad. f. 5x

Hemorrhage, Uterine:

Hydrastini Hydrochlor.	grn. j
Stypticini	grn. vj
Syr. Rubi Idæi.....	f. 5ij
Elix. Simplicis	ad. f. 5j

Ichthyosis:

Resorcini	grn. xv
Aquæ	℥xxx
Lanum	5v
Petrolati	5iij
Olei Lavandulae	gtt. vj

M. Sig.: Rub in twice a day.

Burns and Ulcers:

Zinci Perhydrolis	7.0 Gm.
Balsami Peruviani	35.0 Gm.
Petrolati	ad. 100.0 Gm.

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JUNE, 1913

EDITOR'S NOTES

Treatment of Arteriosclerosis

It has been shown that the intravascular pressure during the period of development acts as formative stimulant so that there will result a thickening of the elastic tube by the addition of functioning tissues, chiefly in the nature of elastic and muscular elements. By the middle or the end of the fourth decade, processes of involution make their appearance which will finally lead to a sclerosis. This sclerosis consists in the development of connective tissue between the muscle fibres. As a result the vessels lose some of their elasticity but are yet able to resist adequately all intravascular tension until the advent of the last stage of the process, marked by the formation of areas of fatty degeneration and necrosis.

In the great majority of cases the direct etiology of arteriosclerotic changes is to be found in toxic influences and in excessive muscular exertion over a long period of time. The day laborer will show thickened arteries earlier in life than will the clerk, though individual disposition plays a very important rôle here. The toxic causes which favor the development of arteriosclerosis are due either to abnormalities of metabolism (diabetes, gout), are introduced from without (alcohol, lead), or are bacterial in nature (syphilis and other infectious diseases). It is not so well known that influenza, scarlatina and diphtheria may initiate the arterial changes. Thus, ne-

crotic changes in the coronary arteries have been found in children who have succumbed to these diseases, and the experimental injection of bacterial toxins into animals has been followed by similar lesions. It is also likely that the nervous system has some direct action upon the arteries for it is a well-known fact that neurasthenics may be affected relatively early in life.

The first principle in the treatment of arteriosclerosis must therefore be directed toward removing or correcting the cause wherever this can be done. It is important to see these patients early while they are still in the so-called presclerotic stage. Here all the signs and symptoms of sclerotic changes may be wanting yet the regular measuring of the blood-pressure will give occasional or continuous high values. In not a small percentage of cases the blood-pressure is not high, even in the more advanced stages; here we must be guided solely by the history of the patient. Individuals of advancing years who eat and drink too much and who exercise too little need a thorough regulation of their mode of life as preventative measure. The strict avoidance of alcohol, a proper diet, gymnastic exercises and hydrotherapeutic measures if applied judiciously, will accomplish much to check the morbid process and keep the patient free from alarming symptoms. Patients accustomed to heavy exercise should, on the other hand, be restrained from overexertion, particularly where the heart itself is not sound.

In every case a thorough examination of the patient is absolutely necessary. In not a few cases, the Wassermann reaction or an analysis of the urine will disclose the etiological factor and direct an important part of the treatment. Syphilis must be suspected particularly where arteriosclerosis has developed early in life; it may very soon be followed by cardiac hypertrophy, chronic interstitial nephritis, angina pectoris and sclerosis of the cerebral vessels of the severest type. It is our duty here to strive for a negative sero-reaction by means of salvarsan and mercury and to follow this cure by the administration of iodide in moderate doses for a long time.

The diet in arteriosclerosis is of great importance; as a rule, milk, vegetables and fruits are to be preferred. The patient of average weight should receive no more than 200 to 250 Gm. meat daily and the fluids ingested should be restricted to 1000 to 1250 Cc. Soups had best be avoided while milk (buttermilk where there is a tendency to obesity) is permitted.

In the more advanced stages of arteriosclerosis, the symptoms become more numerous and the indications for treatment may become manifold. Usually three groups of cases are recognized: 1. Sclerosis with high arterial pressure and cardiac hypertrophy. 2. Cases where the ascending aorta is chiefly affected, and 3. Cases with cerebral symptoms. The following are less common: 4. Sclerosis with functional disturbances in the extremities, and 5. Sclerosis with functional disturbances in the gastro-intestinal tract and some of the large abdominal glands, such as the pancreas.

The kidneys are usually affected in the cases with cardiac hypertrophy but the symptoms of the nephritis may predominate and alone call for treatment. A reduction of the blood-pressure seems indicated particularly in this class of cases. Unfortunately, our methods for reducing the blood-pressure are not very reliable and only temporary in their effect. The mildest and simplest treatment is catharsis, preferably with the salines. Very full-blooded individuals will often do well after repeated, small venesections. The use of high frequency currents may also be of value. According to A. Fraenkel tablets of yohimbine hydrochloride or of nitroglycerin may be taken internally. The former drug acts by dilating the vessels of the skin and of the extremities and thus will tend to relieve internal congestion.

In the more severe attacks of cardiac asthma, yohimbin and nitroglycerin will generally not prove sufficiently potent. The two cardinal drugs here still are digitalis and morphine. Digitalis alone will suffice in the great majority of cases but this drug acts too slowly, while morphine will usually give immediate relief.

After the patient has been relieved of his immediate distress, long periods of rest are indicated. Free catharsis as well as small doses of sodium iodide ($7\frac{1}{2}$ grn. daily) are now prescribed. Where the blood-pressure already shows a tendency to drop, the use of carbonated baths may be of great advantage. The natural baths in Nauheim and Kissingen in part raise the blood-pressure, hence should only be permitted under careful supervision.

The most frequent symptom of sclerosis of the thoracic aorta is angina pectoris. Invaluable drugs here are the iodides, nitrites (amyl nitrite, sodium nitrite) and the nitric acid esters of the higher alcohols (nitroglycerin, erythrol tetranitrate). Two more recent and very effective drugs are diuretin and theophyllin. They both exert an elective action upon the coronary vessels and

thus improve the circulation in the heart muscle. They may be combined with small doses of caffeine sodium benzoate where the arterial pressure is low. Smoking must be strictly forbidden for while tobacco is probably never directly responsible for the development of aortic sclerosis it undoubtedly may give rise to angiospastic conditions such as affect the coronary vessels in angina pectoris.

Sclerosis of the peripheral vessels, manifesting itself in the condition known as intermittent claudication is very frequently caused by the abuse of tobacco and is less amenable to treatment. Massage, gymnastics and high temperatures are to be avoided. The best results are generally obtained from the use of iodides, diuretin, etc. The same applies to the less common abdominal type of arteriosclerosis.

The most prominent symptom of cerebral arteriosclerosis is the arteriosclerotic headache, usually described as very intense pressure upon the top of the head or pain in the occipital region. In many cases there are no other symptoms. The combined use of the iodides and the bromides will relieve many of these cases.

Treatment of Chronic Tonsillitis

Despite everything that has been written to the contrary, H. Paessler believes that the physiological importance of the tonsils is very slight. He is of the opinion that they elaborate no internal secretion and probably only produce mucus and lymphoid cells and act as lymphatic tissue like the rest of the lymphatic tissue in the pharynx. Owing to the crypts that are formed, the chronically infected tonsil is a constant menace to general health. The author therefore believes that a chronic tonsillitis is an innocent local disease only exceptionally, and that sooner or later there will be constitutional disturbances. The removal of the chronically infected tonsil is, in most cases, necessary to cure the disease and to relieve the secondary symptoms. Where the symptoms persist after the operation, it is necessary to search for other foci in the accessory sinuses, the pharyngeal tonsil or the teeth. The only sure method is radical tonsillectomy. There are no contraindications to this operation, and the difficulties of the operation have usually been overrated. Up to the present time no after-effects have been observed which would make it likely that the tonsil plays an important role in the physiology of the body.—Therap. Monatshefte, Jan., 1913.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Simple Means for Enlarging a Contracted Pelvis.—Freudenthal describes a measure with which he found that the pelvis opened enough to permit the birth of a living child when preceding pregnancies had always required the sacrifice of the child. A cushion was placed under the patient's sacrum and the knees were drawn up to the middle of the abdomen during each labor pain. As the patient was unable to do this herself it was done by the attendants, one on each side, each forcibly pressing the patient's knee against the center of the abdomen, the legs turned outward. By this passive fixation of the femurs the gluteal and other muscles attached to the trochanters pulled the ilium outward on each side. This apparently stretched the ligaments of the sacro-iliac articulation, the promontory sank backward and the whole pelvis became enlarged.—Berl. Klin. Woch.

Meningitis of Children.—The difficulties in the diagnosis and treatment of cerebrospinal meningitis in children under two years of age are especially pointed out by H. Koplik of New York. In older children the diagnosis is not so difficult and the prompt use of the Flexner serum treatment has greatly improved the prognosis in such cases. In young infants the symptoms are masked and the dread of making the lumbar puncture needlessly has deterred many from using this valuable method. Particularly difficult are the cases complicated with pneumonia which itself is attended with cerebral symptoms. Many intestinal disorders show misleading symptoms in infants. While a day's delay is not dangerous with older children, it may be fatal for the baby. For all these reasons the reduction of the death-rate has not been much reduced. The virulence of the infection also affects it, different strains differing widely in this respect and there are also cases which cannot be reached by the serum on account of the special sensitiveness of the nervous system at the time it is given. Koplik urges, therefore, an early resort to lumbar puncture in infants under two years of age, so that the treatment may begin in time, and also the greatest care in slowly withdrawing the fluids and introducing the serum to avoid traumatism and extreme changes of pressure. In very young patients the temperature is a valuable guide as to the necessity of repeated puncture and serum injection as in older children, but in face of great restlessness and a normal temperature the fluid should be withdrawn by a lumbar puncture and examined for bacteria. If these persist and a cloudy fluid is obtained it is safe to reinject serum rather than to delay and wait for actual culture to determine whether or not the fluid is sterile. Other baffling features are the closure of the foramen of Magendie in some cases and the impossibility of performing a lumbar puncture in many others. "We then have developed under our eyes the hopeless picture of posterior basic meningitis. But more baffling are the cases of infants in whom, after repeated injections of serum have been made and the temperature has

dropped to the normal and stayed there for weeks, we have developed under our eye the various features of a progressive hydrocephalus. This occurs even when the fluid withdrawn is shown after a time to be sterile. This hydrocephalus is not only due to changes in the ependyma of the ventricles but, as I have shown and also know, to a persistence of the meningococci in the ventricles in much diminished numbers and of reduced virulence." These facts emphasize the necessity of caution before pronouncing such patients cured.—*Jour. A. M. A.*, June 7, 1913.

Acromegaly Following Female Castration.—An interesting case is related by Goldstein of a woman, thirty-eight years of age, from whom the uterus and adnexa were extirpated for multiple myoma. Her menstrual history had been one of continuous dysmenorrhea. Within a year after castration the woman's bones, which had always been thicker than those of her sisters and brothers, exhibited distinct enlargement, and this increase in size has continued slowly for nine years. Patient wears shoes and gloves two sizes larger than formerly. The chin, cheek bones and superciliary ridges have become more prominent. She perspires strongly and chills readily. She has rheumatoid and neuralgiform pains, marked vertigo, palpitation, polyuria, diminished sight and hearing. An X-ray picture of the skull shows no anomaly in the pituitary region, the hypophyseal recess being small rather than large. The forearm and leg are relatively longer and thicker than the upper arm and thigh. That the acromegaly was due directly to castration is evident; for according to authorities in one type of female castrates the bones become elongated. The patient had already present the anlage for acromegaly as seen in the abnormal thickness of some of her bones. Some unknown factor was evidently required in this case, however, for the author is unable to discover others like his own. The small size of the hypophysis appears to show that this gland was not primarily at fault. The tendency in childhood to excessive growth of bones does not speak for an acromegalic dystrophy, but rather for the closely related condition gigantism.—(*Muench. Med. Woch.*, April 8, 1913.)

Necessity for Explicit Directions on Prescriptions and Labels.—A death resulted recently in Pittsburg because a drug clerk dispensed lysol instead of the laxol prescribed. In commenting on this case the "American Drug-gist" points out as a contributing factor to the error the lack of any directions for taking. The prescription, we are told, bore only the words "take as directed." The dispenser, therefore, had no clue to the use to which the remedy was to be put nor to the quantity which was to be taken. The ordinary dose of laxol is from one to two tablespoonfuls. Lysol is a powerful and toxic disinfectant, not used internally. Had the prescriber written "two tablespoonfuls before breakfast," or other explicit directions, lysol would never have been dispensed, for any prescription clerk would recognize the fact that such directions could not apply to lysol. It is highly important that the directions for taking be written out in full on the prescription. This not only acts as a check on possible mistakes as to iden-

tity, but would frequently prevent misunderstandings as to quantities desired. The only excuse for failure to write the directions is lack of time, or, in some few cases, lack of space on the label, but even in these latter cases directions can be written in a condensed form and amplified verbally. Aside from the safeguard against error in dispensing furnished by written directions, their presence on the label would obviate the in dispensing furnished by written directions, and forgetfulness on the part of nurse or patient. It frequently happens, moreover, that the nurse or orderly in charge of the patient is changed from time to time, and in this case verbal directions would have to be transmitted through another person, thus doubling the opportunities of misunderstanding. There is no adequate excuse for not writing out in full the directions on a prescription, and failure to do so may vitally involve the welfare of the patient.—N. Y. Med. Jour., Feb. 22, 1913.

Prophylactic Meningitic Vaccination.—J. H. Black, of Dallas, Texas, refers to the former paper by Dr. Sophian and himself on prophylactic vaccination against meningitis, and reports the results of the repetition of the former experiments by himself on eight of the ten original subjects. The technic was identical with that before reported and in addition to the blood of a normal individual, acting as a negative control, the blood of a student recently recovered from a severe attack of meningitis was used as a positive control. He recognizes the fact that the experimental vaccination of healthy persons in the absence of an epidemic and the detection of immune bodies in the blood is an indirect way of proving its efficacy, which must be finally judged by its clinical application. He gives a tabulated statement showing the results of complement fixation in these cases and considers the following conclusions justified: "1. Prophylactic vaccination produces a high degree of immunity in most cases, this immunity being demonstrable at the end of one year. It seems a justifiable conclusion that most individuals prophylactically vaccinated may safely consider themselves immune for at least one year. Exceptions to this will, of course, be found. 2. Some individuals may show an actual increase in immune bodies at the end of the year over those demonstrable soon after vaccination. 3. Fixation occurred with the serum of the positive control who has recovered from meningitis, but this fixation did not reach as high dilutions as did some of those vaccinated. This has been previously found also in some others recovered from the disease. 4. Experimental evidence warrants us in concluding that prophylactic vaccination is a measure of the greatest value in the control of the epidemic meningitis."—Jour. A. M. A., April 26, 1913.

Mycetoma in America.—R. L. Sutton, of Kansas City, Mo., says that although mycetoma or Madura foot was described by Kaempfer in 1712, its recognition in this country is of comparatively recent date, the case described by Adami and Fitzpatrick being probably the first. He has been able to find but five cases of this kind reported in America, the last one by Wright in 1897. Sutton reports two cases observed in Kansas City. Both patients had lived active outdoor lives in a subtropical country, which is in accordance with the generally known facts of the disease. One was a Mexican, who at-

tributed his infection to a wound, probably due to a cactus thorn, which he received while stepping into an old mule track in soft ground. The other was a native of Texas and the disorder appeared about a year after having her foot stepped on by a horse. A bacteriologic examination was made in both cases and the organism (*Streptothrix madurac*) was detected. Clinically, mycetoma can be divided into three varieties, the yellow or ochroid, the black and the red, so named from the color of the small granules suspended in the oily seropurulent discharge from the sinuses. The ochroid is the most common form and the red is extremely rare: Sutton has found only one case of it reported outside of India. Bacteriologically, the consensus of opinion favors the view that the two common forms, the yellow and the black, are due to different organisms though they are quite similar. The different opinions are reviewed. The often repeated statement that the yellow variety is an actinomycosis is not supported, Sutton says, by the weight of evidence in the literature, and it is positively disproved by the results of Musgrave and Clegg in the Philippines. These authors think it probable that all types of mycetoma are due to streptothrix infection, but whether all forms are caused by the same organism or whether there is more than one species involved cannot be positively asserted.—Jour. A. M. A., May 3, 1913.

Venereal Prophylaxis.—R. A. Bachmann, U. S. A., gives results of his trials of the calomel ointment prophylaxis of venereal disease. He first notices the experiments of the Army surgeons, Russell and Nichols, and then details his own experiments, with the tubes supplied in the Navy, on infected persons which seem to have been effective as far as gonorrheal infection is concerned. Then he repeated Russell and Nichol's experiments with Navy tubes slightly modified, using a platinum loop for scraping the urethra after urination and testing for all colonies, counting the finding of any germs as failure. The results are tabulated and show a large proportion of positive cultures. With Army tubes purchased in the open market, all the cultures were positive so far as protection against gonorrhea is concerned. As regards syphilis, Metchnikoff's discovery has been accepted without question, and calomel salve considered a reliable preventive, though Neisser and Gaucher have disputed this. Bachmann remarks, however, that Metchnikoff's formula has not been followed, and Neisser in his four failures used only a 10 per cent. ointment, while Metchnikoff insists on 33.3 per cent., and lays stress on the exact fatty composition of his ointment base, for which he has not, as far as Bachmann knows, published the formula. A safe effective limit of one hour for its efficacy was fixed at the Pasteur Institute, and not much can be said for the value of its application at a later period. This is certainly no evidence that it is of any use after six hours have passed. The anointing after twenty-four hours, as used in the Army and Navy, has not diminished the hospital admission rate for syphilis. Bachmann says that he does not want what he says to be taken as condemning the methods of venereal prophylaxis. He only wants to have them put on a sounder basis and to forestall criticisms that might affect their usefulness.—Jour. A. M. A., May 24, 1913.

Book Notes

COPROSTASIS.—Its Causes, Prevention and Treatment. By Sir James Sawyer.—This little work is a reprint of six chapters from the author's "Contributions to Practical Medicine." Like the author's previous work on Insomnia, it abounds in practical advice and is written in a most pleasing style. The subject itself is one which in the past has not had the attention it deserves. Treatment in general has been limited to the relief of urgent symptoms. (Cornish Bros., Birmingham, England, 1912. Cloth. 74 pp. Price, 2s. 6d. net.)

THE NARCOTIC DRUG DISEASES AND ALLIED AILMENTS: Pathology, Pathogenesis and Treatment. By George E. Pettey, M.D., Memphis, Tenn. Illustrated.—In this excellent work Dr. Pettey outlines a successful and practical course of treatment for various forms of drug addiction. The extensive use of narcotics and the present alarming increase in drug habits makes a work of this kind a necessity and in presenting it the author does a service for which he deserves the thanks of the entire profession. The vital and essential principle of the treatment advocated is elimination. The method, with all its auxiliaries, is presented in detail and furnishes a rational basis for the scientific and humane management of these cases. Much space is devoted to the treatment of acute ailments occurring in narcotic and alcoholic habitués, to the withdrawal of narcotics after prolonged use during acute diseases, the management of infants born of drug-using mothers, the treatment of delirium tremens, and "sobering-up" the victims of alcoholism. There are chapters on the physiological laws governing the action of purgatives, on physical training, diet during convalescence, review of literature, etc. Its 500 pages are replete with information. We commend the work to our readers. (F. A. Davis Company, Philadelphia, 1913. Price, \$5.00 net.)

ANNALES DE LA CLINIQUE CHIRURGICALE DU PROFESSEUR PIERRE DELBET. No. 2.—"Varices du Membre Inferieur: Pathogenie et Traitement." Par Pierre Delbet et Pierre Mocquot. Avec 20 planches hors text et 61 figures dans le text.—This enormous work is based on a large series of experimental, clinical, anatomo-pathologic and surgical researches. It is by no means confined to a study of the more usual and typical varices of the internal saphenous but devotes itself to all observed forms. The text throughout is supplemented with numerous excellent illustrations, many of them in colors. The second part of the work is concerned with the treatment of the various forms. The authors describe and compare the various methods now in use. They also give in great detail the method originated by Professor Delbet. (1 vol. grand in-8. Librairie Félix Alcan, Paris, France. Price, 18 francs.)

TASCHENBUCH PHARMAZEUTISCHER SPEZIALITÄTEN (Original und Krankenkassenpackungen). Zusammengestellt im Auftrage der ärztlichen Lokalkommission Oldenburg von Dr. med. Hügél. A catalogue of an enormous number of proprietary remedies giving the name, manufacturer, size of package, price and composition. The various remedies are grouped according to their

uses: anesthetics, hypnotics, anthelmintics, antipyretics, etc. The work closes with a summary of the "Formulæ Magistrales Berolinenses." An excellent index greatly enhances the value of the book. (200 pages, cloth. A. Stuber's Verlag, Würzburg, Germany. Price, M. 2.80. 1913.)

WURZBURGER ABHANDLUNGEN AUS DEM GESAMTGEBIET DER PRAKTISCHEN MEDIZIN. xiii Band, 3 Heft. "Anzeichen und Gegenanzeigen der internen Behandlung des Kropfes," von Dr. Wilhelm Hagen. A treatise on the indications and contraindications to the medicinal treatment of goiter. Regarding the use of iodine the author points out the advantages of the organic over the inorganic. (A. Stuber's Verlag, Würzburg, Germany. Price, M. .85. 1913.)

WURZBURGER ABHANDLUNGEN AUS DEM GESAMTGEBIET DER PRAKTISCHER MEDIZIN. xiii Band, 4/5 Heft. "Über Pantopon," von Dr. O. von Boltenstern. (A. Stuber's Verlag, Würzburg, Germany. Price, M. 1.70. 1913.)

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Proceedings of the Sixth Annual Meeting of the Association of Life Insurance Presidents. New York, 1912.

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TASTE AND SMELL.—To the series entitled "Questions Biologiques Acuelles," edited by Professor Dastre, a volume on taste and smell has been contributed by L. Larguier des Bancelles. The subjects are treated in a readable and scholarly form. An interesting experimental observation quoted from Pawlow is that the sight of black may cause saliva to flow into the mouth of a dog if an acid solution colored black has been put several times into its mouth; this sight reflex disappears if repeated frequently without being confirmed by the acid stimulus. The author quotes from Berthelot the curious calculation that if a grain of iodoform were enclosed in a tube communicating with a receiver of the capacity of 100 Cc., it would scent every cubic centimetre of this perceptibly in one hour, but the amount lost by the iodoform is so small that if a fresh receiver were put in place every hour for a hundred years the iodoform would have lost only 1 mg. in weight; 0.01 mg. of mercaptan will scent 230 cm. of air, and 1 litre of air so scented will not contain more than 0.000,000,04 mg. of mercaptan. Odors spread as a gas diffuses, and the olfactory nerve endings are excited by the minutest quantity of matter. The fixation of odors by different substances is curious—for example, paint by wet hay, and tobacco by curtain materials; skatol is fixed by aluminium, musk by copper, tin, nickel, and lead, but not by aluminium or glass, and onions by steel. One of the most interesting ways of obtaining scents is *l'enfleurage à froid*; that is, simply putting the flower in contact with a layer of fat. The pommade so obtained when treated with alcohol yields up the scent.—Brit. Med. Jour.

THE APPLE AND THE DREAMBOOK.—The apple of gold in the *vesta argenti* has a pleasing sound to those who lack familiarity with both metals, but even this ancient allegory of brilliant hue fades in comparison with the recommendations of various health cranks as to the therapeutic advantages to be derived from nocturnal engorgement with the ordinary apple of commerce.

The liver is said to be about the most patient organ of the human body. The stomach will put up with a good deal, but once in a while revolts at the dietetic insult and issues a wholesome warning. Not so the liver—it, like the patient camel, proceeds apathetically along, bearing its heavy burdens until at last, like the camel also of story, it succumbs to the last straw—often the straw supplied by the druggist with the ice-cream soda.

Long before this tragical ending, however, this noble, patient organ—the liver—has probably been subject to the apple treatment.

When everything else fails, the philanthropist who writes articles on health and hygiene

for popular reading falls back on the apple. Under his illuminating prism of exaggerated description, the apple discloses all the spectral rays by day and surrounds the victim of the apple habit with other specters by night.

Most families preserve among their choicest legends a series of dreams narrated at the breakfast table by the family victim of the nocturnal apple habit,—dreams by the way which are intended to record upon the brain of the dreamer the slow, culmative wrath and indignation of the patient liver.

There is a great demand on every side for a larger production of apples. The apple properly cooked as a vegetable possesses great merit, not only as affording an easy solution of many culinary problems, but as providing an excellent quality of bulkage for the alimentary canal, and when moderately partaken of in a raw state during the earlier hours of the day it presents many advantages as a salad element in the daily ration. When, however, the apple is consumed at bedtime as a sort of sacred rite, the utility of the dreambook at once becomes apparent. A dreambook could well and consistently be supplied by the grocer to all his customers who have the nocturnal apple habit.—Monthly Cyclopaedia.

AN ANCIENT PROBLEM NOT YET SOLVED.—Those good souls (all men are for them) who are devoting their efforts in a direction calculated to reduce the traffic in white slaves cannot but read with the deepest interest the accounts which have come down to us describing similar labors of several hundred years ago. Legislative enactments aimed at prostitution are almost as old as the vice itself. The lawmakers of the ancient Jews, Greeks and Romans seriously contemplated the iniquity of the traffic in women, and passed laws looking to its relief—but prostitution continued as before. The subject of social prophylaxis among the ancients and people of the middle ages is highly absorbing, all the more so because of the added interest reforming influences of to-day have given this phase of prostitution, and if this paper bids fair to run into an unusual length let the reader bear in mind the age, interest and importance of the subject and indulge the writer.

Since Christianity has ever had for one of its greatest purposes the protection and elevation of womankind, it is to be naturally expected that the most positive steps toward the correction of abuses involving women would spring from Christian hearts, and so it has been. Even the corrupt Roman Empire, after receiving its tincture of the new religion, halted in its sensual course long enough to inveigh against the institution of prostitution. It is gratifying to learn that several of the Christian rulers of Rome—Constantine, Constantius, Theodosius the Younger, and Justinian, to name a few—pronounced severe penalties against the debauching of young females and encouraging them to lead a life of shame. But such laws among a pleasure-loving people lacking the moral stamina to subscribe to the rigid doctrine of sexual cleanliness, could not be a force in the uplifting of women, and the nation's vices continued as before. Until the rude tribes of Northern Europe had come into contact with the more complex civilization of the Roman nation, they had possessed a stern morality which maintained female virtue and promoted manly vigor. Tacitus was one of the

early writers to comment on the unyielding chastity of the unlettered German women. But conditions were to change, the change coming with extensive campaigns waged by the tribes of the North against the decaying Roman nation. It is a noteworthy fact that when two nations of entirely dissimilar moral types are pitted against each other, and the corrupt nation suffers defeat, the victorious host takes on with surprising celerity the vicious habits which had brought about the defeated nation's downfall. Thus, by peeping into the sociological conditions of the peoples we are dealing with at the present time, we may easily trace the evil influence exerted by the hothouse civilization of the Romans upon the coarser, fibred but morally cleaner Huns and Goths.

This former high order of morals suffered pollution from which it never cleansed itself. Henceforth a laxness developed in the erstwhile moral Northern bosom. To the consternation of the tribal rulers prostitution began to fasten itself upon the long chaste barbarians. To our eyes the first evidence of this commencing looseness is to be seen in the passage of laws of a prohibitory character. Thus when a woman lost her respectability she was punished by expulsion from the city in which she lived. She was cut off from all family communication and became virtually a slinking outcast. Although the Visigoths visited the foregoing and even severer penalties upon prostitutes, yet the practice was not stamped out for the main offenders, the more elusive seducers and procurers, were not so easily reached as the poor victims themselves. In many cities prostitutes who ventured out into the streets and public places were heavily fined, scourged and thrown into prison. The decree of Theodoric threatening death to those who gave shelter or support to loose persons is a clear indication of the seriousness with which the Goths bent themselves to the hopeless task of freeing their land from the stain of prostitution.—Urologic and Cutaneous Review.

WHEN APPLYING PLASTER-OF-PARIS immerse the bandages, on end, in a basin of water, deep enough to cover, one at a time as needed. As the bandage is lifted out, cover each end with the fingers to prevent loss of the plaster. Squeeze gently and pull off the raveled strands.—Amer. Jour. Surg.

LES TIEGNES.—Off in one corner of the old Hospital Saint Louis in Paris there have been made, in the past few years, some of the most important advances in the medical sciences. The buildings have existed in part around three hundred years, but the laboratory is modern and the work done emphatically so. Professor Sabouraud commenced working with diseases of the hair in 1892 and has practically revolutionized our knowledge of these conditions. His works on seborrhea, impetigo, pityriasis and alopecia are authoritative, while his latest work, "Les Tiegnes" (The Ringworms) is one of the most scientific contributions to modern medical literature. Using a culture medium devised by himself, Sabouraud has discovered some thirty different organisms causing ringworms, he has made a sane and scientific classification of the cryptogamic diseases based on the cultural characteristics of the parasites and his treatment of ringworm and favus is now used the world over. In 1896, four years after commencing his studies, in discussing the inadequacy of the treatments then in vogue, he wrote: "The root of the hair is inaccessible to the external antiseptics." This being the seat of the trouble, Sabouraud immediately set to work to find some means of causing a spontaneous falling out of the hair, inasmuch as the hairs were too fragile to epilate mechanically. But it was not until January 4, 1904, that he was able to announce to the Dermatological Society the cure of one hundred cases of ringworm by the use of the x-ray. The x-ray had been used before to cause the epilation of the hair, but there was no sure means of measuring the dosage and severe burns were frequent. However, in 1903 Sabouraud and Noire invented their pastilles of the platino-cyanate of barium, so devised that one could measure exactly the dose of rays given to a child, without causing a dermatitis. It is based on the following theory. With the child's head 15 centimeters from the anticathode of a tube and with the pastille 7.5 centimeters from the same, the latter changes its color just at the point when sufficient rays have been given to cause a total epilation, but no burn. The rays do not kill the organisms, but in twenty to thirty days there is a falling out of the hair, so that further infection from the roots is impossible and the disease can be effectually treated with various antiseptic remedies. Thanks to the pastilles, in the hands of

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As to the results, we may take a few extracts from Sabouraud's own writings. There has been an augmentation of the number of cases cured without hospitalization, a correlative diminution of the time spent therein. It has been found possible to suppress a part of the hospital formerly devoted to ringworm cases and likewise to do away with several suburban hospitals formerly devoted to Parisian cases. Formerly it took two years to cure a case of ringworm, while now it is only three months at the most—and many of the parents that would not nurse their child for so long a time but demanded its entrance into a hospital, now cheerfully care for him at home. Thus Sabouraud was able, January 1, 1904, to give up 150 beds in the l'Ecole Lailler of Saint Louis to the services of medicine and surgery. Nevertheless, due to the present rapidity of cure, 500 patients are turned out well annually, where formerly there were only 110. Where previously a cure cost the state 2,000 francs (\$400) it now costs but 260 francs (\$52). Moreover, it has been possible to give up the suburban hospitals for Parisian ringworm cases having a total of 350 beds. To sum up: by dispensing with the use of 150 beds at Saint Louis and of 350 beds in the suburbs more than 250,000 francs (\$50,000) of capital was returned to the state, while annually there is a saving of 400,000 francs (\$80,000) through the curing of five times as many patients as heretofore.

At present Sabouraud is working on alopecia areata and we may expect and hope for still greater discoveries in what has been as yet an almost hopeless field.—Cleveland Med. Jour.

PERSISTENCE OF SUPPURATION after incision of a furuncle or abscess of the auditory canal or auricle indicates the development of a localized chondritis.—Amer. Jour. Surg.

MEDICAL LATIN.—The prophetic soul of Dr. Charles J. Whitby, dreaming of things to come, foresees an organization for the regeneration of society of which the medical profession is to be the nucleus. As its activities will become cosmopolitan, "it will agree," he says, "as to the adoption of some universal language." This does not necessarily follow, by the way, but it is certain that it would be well if it did so agree. "The claims of Esperanto," Dr. Whitby goes on, "will, no doubt, be considered, but I am inclined, upon the whole, rather to advocate the revival of Latin." We have ourselves for years advocated, not the revival of Latin—for it is not dead—but its employment as the international language of science. Dr. Rolleston, in his inaugural address on Universities and Medical Education, also referred to the want of a universal language, as shown by the construction of artificial substitutes such as Volapuk, Esperanto, Ido, Neutral, and by the movement for the adoption of a simplified form of Latin as an international language under the name of "Latino." As Mr. Micawber said of "gowans," we are not exactly aware what Latino is; but we think that while we are about it we might as well learn Latin, as for instance it is used for lectures and debates in Roman Catholic Colleges. A difficulty in the way is that Latin is falling so much out of common knowledge that it is sometimes successfully

used, as all language is, according to Talleyrand, as a means of concealing thought. A French paper recently told the following story, which may quite possibly be true. Some years ago a French ship in quarantine in the roads of Mauritius was visited every day by the medical authorities. Friends of the passengers, journalists and privileged members of the public took the opportunity of going out in the little vessel that carried the sanitary authorities, and conversing at a distance with those confined on the ship. One day the ship's doctor indulged in a little joke to relieve the weariness of quarantine. He confided to an inquiring reporter the news that a case of "pigritis" had just occurred on board in the person of one of the officers as the result of having nothing to do. It was pitiful, he said, to see the unhappy man, but he assured the reporter that all necessary precautions were being taken. The same evening a local newspaper solemnly announced that a fulminating case of pigritis had occurred on board the vessel. The next day the sanitary inspector came on the scene. In reply to his anxious inquiry the ship's doctor informed him that the case was fairly serious. The patient had little appetite and was suffering from great muscular depression. Asked if he feared contagion, the doctor said he feared the whole ship's company would be attacked. When this became known it caused great alarm in the town. A large stock of disinfectants was ordered. The inhabitants talked of nothing else. "Just think," they said to each other, "a new disease hitherto unknown in Mauritius. But these infernal epidemics of hot countries! There is always something new being discovered in that line!" Next morning there was a special meeting of the council of health. It was proposed to take strong measures. Luckily one of the members remembered that *piger* is the Latin for lazy, or "pigritis" might have been included among notifiable diseases; a bacteriologist would then have discovered the microbe, and doubtless a new vaccine would have been prepared. There have been frequent occasions to note in reports of meetings and so forth sent for publication how closely the members of our profession resemble Shakespeare in having "little Latin." Since the agitation about the Insurance Act began the changes have been rung on such forms as *per capitem* and *per capitam*. But these do not scratch Priscian's head so badly as caught in *flagratio*, *infertilis masculinus* (apparently intended to denote male infertility) which we have recently come across in leading medical journals of the United States. Better "Latino," or even Esperanto, than this kind of thing.—Brit. Med. Jour.

DOCTOR JOHNSON AND THE DOCTORS.—"Dr. Johnson," says Boswell, writing under date 1784, the year of Johnson's death, "had in general a peculiar pleasure in the company of physicians," and this was certainly not abated when he took tea at Oxford in the company of Dr. Wall, a "learned, ingenious, and pleasing gentleman." It was on this occasion that the great moralist prophesied, in some sort, the necessity for research into the diseases of the East and of warm climates. He fell foul of the Radcliffe Traveling Fellowship, and averred that the Fellows had done very little good. "I know nothing that has been imported by them; yet many additions to our medical knowledge might be got in foreign

countries." And he cited inoculation as having saved more lives than war destroys, and the unnumbered cures performed by Peruvian bark. "I would send the Radcliffe Fellows," he cried, "out of Christendom; I'd send them among barbarous nations." Johnson's kindness to poor old Dr. Robert Levett, his pensioner, is, of course, famous, and equally so are the lines he wrote on the doctor's death at the age of eighty in 1782. Goldsmith, also a physician, was among his intimates, and the chaff bestowed on his new plum-colored coat has been immortal. The coat, terribly worn and threadbare, is now in the London Museum, and suggests the pathetic supposition that the spendthrift poet-physician wore it till it was almost unrepresentable. At the time of Goldsmith's death in 1774 Johnson wrote, "Of poor dear Dr. Goldsmith there is little to be told." Goldsmith probably owed £2000, not less, and this preyed on his mind and heightened a fever, which he further complicated by an excessive use of James's powders. Referring to the debt Johnson humorously asks: "Was ever poet so trusted before?" Later, writing to Bennet Langton, he says, "Let not his frailties be remembered; he was a very great man." If Goldsmith by his over-medication hastened his own death, Johnson by dint of amateur surgery did likewise. Shortly before his death he inflicted such wounds upon himself, in the hope of obtaining relief, as to suggest the idea of suicide. He used a pair of scissors in an endeavor to void the water of dropsy. Johnson's last words were many. To the faithful Langton he said tenderly: "Te tenam moriens deficiente manu." Of his man nurse he said, with a flash of the old humor: "Sir, the fellow's an idiot; he's as awkward as a turnspit when first put into the wheel, and as sleepy as a dormouse." His last recorded words were to a young lady who had asked for his blessing: "God bless you, my dear." This was spoken on Dec. 13, 1784. It was to this young lady, doubtless, that he wrote a priceless letter of farewell, now in the possession of Dr. H. T. Scott, the great authority on autographs. As Dr. Scott says, such a letter is a part of the august dead, and should not be parted with at any price.—*Lancet*.

THE SUGAR CONTENT OF HUMAN BLOOD.—Thanks to the gradual perfection of the analytic procedures of biochemistry, the estimation of the sugar content of the blood, once among the occasional methods applied to this circulating fluid for purposes of research, has become an almost current practice in some laboratories. Inasmuch as the organism is exceedingly sensitive to even small variations in the percentage of sugar in the blood, the importance of adequate quantitative information on this point can scarcely be over-emphasized. For the most part we have been guided by the appearance of sugar in the urine as an index to the increased content in the blood. This has been due to the ease with which the desired information could be obtained by simple and accurate methods of chemical examination of the kidney secretion, rather than to any assumption that the data thus furnished give a perfect picture of the fundamental underlying condition, the sugar content of the blood itself. The technic of the analysis of the blood for sugar has had its pitfalls, and has little by little profited by that wholesome criticism which makes for progress in scientific work. We would not

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imply that such an examination vies in simplicity with the routine methods of urinary analysis; but it is well within the possibility of any well-equipped and—what is more important—well-manned clinical laboratory. The removal of specimens of blood from the blood vessels in man for purposes of examination has become a common procedure as a consequence of the diagnostic demands of the last decade, so that this feature presents no formidable obstacles. These factors have accordingly combined to furnish abundant opportunity for the collection of statistics regarding the sugar in the blood. New facts have been brought to light, among them the demonstration of the participation of the red corpuscles as well as the plasma in the sugar-carrying function.

The question of the sugar content of the blood has been subjected to critical review and received numerous analytic additions in the medical clinic of the University of Leipsic at the hands of Rolly and Oppermann. A series of standard or normal figures, so to speak, have been established. The sugar content of the plasma was found to vary between 0.078 and 0.107 per cent. The average of 0.096 per cent. for the plasma is contrasted with 0.076 per cent. for the entire blood, including the red corpuscles. These investigators find the sugar content of the latter to be, as a rule, smaller than that of the plasma.

When the temperature of the body is artificially raised by the use of such methods as light baths, there is an attendant increase in the proportion of sugar in the blood. Rolly and Oppermann caution against the careless employment of such temperature-raising devices in the manage-

ment of diabetic patients, inasmuch as the accompanying hyperglycemia may have an untoward effect on the welfare of these individuals. They have further demonstrated that febrile disease in man tends to be accompanied by an increased sugar content of the blood. This hyperglycemia is in part attributable to the heightened temperature and partly to the toxins furnished by the infecting organisms. Other types of poisons may induce similar consequences. Consideration has also been given to the occurrence of hyperglycemia in the absence of bacterial processes.

In the past high blood pressure has sometimes been charged with conditioning an increase in the sugar in the blood. A causal relation between the two factors now scarcely seems tenable. When they are associated it appears more probable that some other pathologic process is responsible. The detailed analysis of such instances remains for the future.—*Jour. A. M. A.*

STERILIZATION OF MILK.—J. L. Morse of Boston, says that the term "sterilization" should never be applied to the processes used in the preparation of infant's food, as they do not render the milk bacteriologically sterile. He describes the changes produced in milk by heat, in appearance, taste, smell and composition. Changes in taste and smell are not usually produced at less than the boiling point, but heating to 150° F. or over materially prevents the rising of cream. In boiling there is a precipitation of the calcium and magnesium salts, the organic phosphorus is decreased and the inorganic increased, and about one-third of the citric acid is precipitated in the form of tricalcium citrate.

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About 90 per cent. of the carbon dioxide and 50 per cent. of the oxygen and nitrogen are also driven off and there is a certain amount of decomposition of the compounds of casein and its base. The soluble albumins are precipitated. These are the findings of Rosenau, Pfandler, Schlossmann and Sommerfeld. Heating milk to 149° F. for thirty minutes does not cause noteworthy changes in the composition, and the precipitate reaction is not diminished by even an hour at 248° F. It has been shown that the typhoid, diphtheria, dysentery and cholera germs, as well as other pathogenic organisms, are destroyed by heating to 140° F. for twenty minutes. The spore-bearing organisms are more resistant and the toxic products of bacterial growth are sometimes rendered inert and sometimes not. That of the colon bacillus is unaffected at 272° F. The lower animals do better when fed on raw than cooked milk of their own species and babies react similarly. There is, however, little relative evidence as to the ill effects of cooked milk as a food, either in the production of rickets or scurvy, though the evidence seems a little stronger as to the latter. Other factors must be excluded, however, and more extensive observations are required. The assertion that cooking milk "devitalizes" it is not altogether credited by Morse, who considers it at least not proved, and he advises cooking milk as a routine practice for the destruction of injurious germs, even if it does affect the digestibility. Pasteurization, using 145° F. instead of 140° as the standard, for twenty minutes does not do away with the necessity of taking care of the milk and keeping it cold. The flash method of pasteurization is condemned. The method advised for home use is pasteurization in sterilized bottles placed in a dish of water on the heater and kept there till the thermometer in the water reaches 145°, then taken out and wrapped in a blanket and allowed to stand for thirty minutes, then taken out and cooled quickly, preferably in running water, and kept in a cold place till used.—*Jour. A. M. A.*, March 24, 1913.

INTRATRACHEAL ANESTHESIA (Meltzer) is quite acceptable for operations other than intratracheal. The etherization is almost automatic, danger of over-etherization is minimized, and coughing, straining and mucous accumulation are obviated.—*Amer. Jour. Surg.*

THE ROYAL MUMMIES.—There has recently appeared, as a part of the *Catalogue Général des Antiquités Egyptiennes du Musée du Caire*, a volume from the pen of Professor G. Elliot Smith which constitutes a most remarkable addition to our knowledge of the reality of the rulers of ancient Egypt. The embalmer's art has preserved the remains of the Pharaohs for all time, save in those cases in which the cupidity of their own subjects has led to the plundering of their graves and the partial or complete destruction of their bodies. Such as are left are happily removed beyond the reach of the spoiler, and now in this volume every detail of their preserved remains is placed on permanent record. All the characters of their physical types, their features, their deformities and defects, their diseases—even their grey hairs and their abdominal corpulency—are noted with rigid scientific accuracy of detail. There may seem to some people an impudence—even an indecency—in this, and Professor Elliot Smith has done well to point out in his preface that what desecration

was done to the Pharaohs was wrought some 29 centuries ago, and was at the hands of native plunderers, from whose destructive vandalism the archaeologists have rescued these venerable relics. To describe the preserved tissues of a one-time mighty monarch, and even to lay bare all his infirmities and weaknesses, so that a true light may be thrown upon contemporary history, is a trivial sacrilege compared to hacking his body to pieces in search of a scarab or an amulet. These mummies have been rescued from the spoiler, and in the state in which they have been rescued they have been described; some have been mended by the replacement of fragments dislodged by the ancient plunderer; none have been desecrated. It is a remarkable page of history that is unfolded. The wounds that caused the death of Sagnounri (Sekenene) III, last monarch of the Seventeenth Dynasty, are described in detail so exhaustive that the conclusion that they were inflicted while the victim was lying upon his right side is inevitable. The Lady Rai is revealed as "a slim, gracefully-built woman, with small or only moderately full breasts, a small, oval face, graceful and well proportioned; and so well preserved that she is the least unlovely of all the mummies of women that have been spared." The baldness of many Pharaohs is noted, defective conditions of the teeth were common, and even the poor club-foot of Siptah is shown in an admirable photograph. Perhaps the personality to which the greatest lay interest is attached is that of Menephtah, the Pharaoh of the Exodus. Of him we now know the most astonishingly intimate details: how he

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was old, and almost totally bald; how he was somewhat corpulent, though with those refined features that distinguished his grandfather Seti the Great. It is clear that Meneptah had suffered from atheroma of his arteries, and his aorta has furnished material for an exhaustive investigation at the Royal College of Surgeons of England. This great work furnishes not only a permanent description of all the known remains of Egypt's ancient kings, but it also forms a most important contribution to our knowledge of the evolution of the processes of embalming. Upon this side of the question Professor Elliot Smith is particularly well qualified to dogmatise; and it is evident that his knowledge of the customs of the embalmers of different periods adds in many cases to the certainty of identification of the actual mummies. As a portrait album of the rulers of Egypt the plates, of which there are 103, stand unrivalled. The reproduction of the series of photographs taken by Brugsch Pasha has been carried out to perfection, and the frontispiece, which depicts the head of Seti I, is a work of real beauty, reflecting as it does the atmosphere of serenity which is so striking a feature of this example of the art of embalming.—Lancet.

ACTIVE HEMORRHAGE FROM A GASTRIC ULCER is rarely fatal; the weight of evidence indicates that it is better to operate after than during the bleeding. Active hemorrhage from a duodenal ulcer is often fatal; operate as soon as the diagnosis is made.—Amer. Jour. Surg.

THE HYGIENE OF HEARING.—W. S. Bryant of New York, describes the conditions that affect the sense of hearing and their prophylaxis and treatment. The changes that affect the hearing most insidiously are of two kinds: those chiefly inflammatory, and those due to defective ventilation. The results are about the same in both. The inflammation causes congestion, increase of connective tissue, contraction, anemia, faulty nutrition, atrophy and degeneration. The choking of the eustachian tube produces similar effects without inflammation. Bryant recommends systematic oral inspection by the physician, with reference to all the ear diseases and defects and their causal conditions in the mouth and air passages, such as adenoids, diseased tonsils, mouth-breathing, etc., and the various diseases which affect the air-passages. Patients should be ad-

vised not to touch the ear deeper than the external opening, "to scratch the ear with the elbow only," to allow no water to enter the deeper parts of the external canal, to keep the nose free, to blow the nose without closing the nostrils and if possible to avoid loud sounds or continuous sounds of high pitch. Many ear diseases are caused, Bryant says, by neglect in these particulars. General body conditions detrimental to good hearing are mentioned, such as anemia and arteriosclerosis, metabolic disturbances, rheumatism and gout, and alterations of internal secretions. Toxic factors such as drugs, and the toxins of syphilis and other diseases are also included, and the general treatment for these conditions often alleviate or cures deafness. The local treatment should be directed to the nose, throat and pharynx. The occupational and traumatic diseases of the ear are enumerated—mechanical, functional, aqueous or thermal irritants, infections, intoxications, exhaustions, commotion or shock or foreign bodies. The dangers of occupational deafness should be recognized and minimized by law. In exanthemas and certain infectious fevers—notably typhoid fever, diphtheria, whooping-cough, pneumonia and syphilis—the preservation of hearing should be safeguarded by constant careful attention to the ears and nasopharynx. These diseases are the cause of about 47 per cent. of cases of serious deafness—these conditions often alleviate or cures deafness. seen clinically is due to degenerative changes, but if these are not too far advanced treatment will alleviate the condition. If due to nerve lesions the prognosis is good in luetic cases but bad in others. With persistent ear discharge but intact nerves, local antiseptic treatment will relieve or cure with attention also to the general conditions. Acute deafness due to other than nerve lesions can usually be quickly relieved by drainage and inflation with antiseptics. If there is an acute virulent infection, however, surgical intervention may be demanded. In any case asepsis is essential. Bryant's clinical experience has shown him that in mastoid operations with due attention to detail, hearing can be both improved and preserved. In the rheumatic mastoid, operation should be delayed until the formation of abscess, but this should not be waited for when the dense mastoid is involved. Operation is indicated by fluctuation, and edema in the mastoid regions, "edema of the osseous canal wall, localized sagging of the inner end of the canal wall, bulging of the tympanic membrane, purulent discharge,

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pain on pressure in the mastoid region, perforation of Shrapnell's membrane, septic appearance of the patient, and eye-grounds indicating intracranial extension." The bacterial infection is of interest, especially if due to the *Streptococcus mucosus*, which is the most virulent. In obscure cases the differential blood-count is of value. General symptoms favoring operation are temperature over 100 or below 98 or increased rectal temperature. The x-ray is also valuable in showing indications. Conservation of the parts of the mechanism of hearing, and avoidance of cicatrices or adhesion in rapid convalescence are to be aimed at.—*Jour. A. M. A.*, March 22, 1913.

FIGURES BASED UPON DEATH RATES are not so conclusive as they sometimes seem. Such and such a town proclaims to the world that it is the healthiest place in the United States because its death rate is the lowest, while some other municipality shows a much higher death rate, and so, presumably, is much less healthy. Death rates depend upon a number of factors that are unknown to those who see only the figures, not the least among which are the faithfulness with which the details in a given territory are reported and tabulated, and the ideas of the health authorities in a given locality as to the total population in their domain. Aside from these considerations, however, there are factors other than mere salubrity of climate and hygienic surroundings which affect results to a marked degree. Take, for instance, a new frontier town, of which the greater portion of the inhabitants are sturdy men. We may expect the death rate in such a town to be very small. On the other hand, in the towns "back home," where these men's families are left, the dying of the old people and the babies raises the death rate to a point which would seem to indicate most unwholesome surroundings. Again, an investigator has "discovered" a rise in late years of the death rate of those past forty years of age, as compared with the total death rate, and says that this fact is most "alarming." As all men have to die, it necessarily follows that the fewer of them that shuffle off the mortal coil before middle age, the more of them there will be to die after passing that stage of life, so that instead of the increasing death rate of the middle-aged and old being "alarming," it shows that the average span of life is growing longer. An amateur Southern vital statistician who is something of a joker recently stated that the post-bellum condition of the colored brother was not so conducive to longevity as was the slave life, and as an evidence of the truth of his statement he pointed to the fact that in the South one never sees a very old darkey except one who was "raised" in the more healthful surroundings formerly maintained by the white people for their chattels. A listener, not "tumbling" to the joke, said that he had to admit the point, as the proof was incontrovertible. This shows that bald facts are not always the most conclusive evidence of the truth of contentions for whose corroboration they are cited.—*Druggists Circular*.

ISOLATION IN PSYCHONEUROSES.—D. Pachanton observes that complete isolation, while a very valuable therapeutic measure in these conditions, is frequently both a hardship to the patient himself and a source of opposition on the part of his family. In some cases, indeed, absolute isolation may prove useless or even harmful.

For these reasons the author advocates only partial isolation in psychoneuroses, adopting a plan similar to that of Déjerine at the Salpêtrière, Paris. Three or four patients are placed together in a spacious, well ventilated room. They must remain in bed, and are isolated from the exterior in that they are not allowed to receive letters or visitors; but they are able to see one another and to converse.

The results thus obtained were most satisfactory. The plan was resorted to whenever absolute isolation failed to overcome the patient's delirious state. Patients with hypochondriac ideas of long standing were also often placed together, and the results appeared sometimes better than those obtained by individual isolation. Each patient is able to observe, at a period when he is certain of the reality and seriousness of his own affliction, that those of his neighbors are but products of the imagination. By indirect persuasion he is thus assisted in getting rid of his own chimeric and baseless fears. Capricious, selfish patients, for years a scourge in their families, in partial isolation undergo a period of training in moderation, altruism, and sociability. On the whole, this form of isolation, employed with due circumspection, is often a useful measure. Where a mutual psychic influence is exerted among the several members of a group of patients, it is always oriented favorably, i. e., the less seriously affected patient influences the more seriously affected in a manner tending to promote recovery.—*N. Y. Med. Jour.*

IT SHOULD NEVER BE FORGOTTEN that the proper preparation of a salve in skin diseases is of as much importance as the choice of its ingredients.—*Urologic Review*.

ARTERIOSCLEROSIS.—L. F. Bishop of New York, remarks on the increasing frequency of heart disease and general circulatory disease especially in those past middle life. The victims go too often for years without having their condition intelligently treated because no one has pointed out the danger-signals and because the interest in germ disease has absorbed everyone's attention. He believes that in nine cases out of ten the causes are not those usually assigned but that heart disease and hardening of the arteries are due to disturbances of the chemistry of the body. The prophylaxis must be accomplished by means of diet, rest and exercise, the administration of certain well-defined remedies and the reduction of nervous strain, than which nothing is more liable to disturb the chemistry of the body. The tendency to heart disease in otherwise healthy persons is better detected by examination of urine than of the heart itself and it should be met by periodic examinations at regular intervals. Undue importance has been attached to the coronary arteries which are an element in only a small portion of the cases, and with the majority there is no question of great muscular strain. His own belief is that most cases are due to chronic amino-acid poisoning and that intestinal putrefaction has an important bearing on the matter. Bishop thinks that heart disease often develops as a result of damage due to some food material to which the patient has an idiosyncrasy. We cannot lay down rules for everyone; some persons cannot take excessive amounts of certain protein foods that are harmless to others. The symptoms may not be manifest while the damage goes on and the first thing that may be noticed is in some accidental examination of urine showing indican or the derivatives of phenol, or

skatol. After a while the kidneys become damaged and later the myocardium and last of all the arteries. In the early stages the blood-pressure is low because of the lack of muscular tone of the heart and arteries, but when the kidneys become incompetent the blood-pressure becomes high. "Thus we have a vicious circle—the hypertrophied heart and blood-vessels and the damaged kidneys. The kidneys and blood-vessels are progressively damaged, and at the end of twenty-five or thirty years the patient, who started with indicuria, has a typical case of Bright's disease, with hypertrophied heart and blood-vessels, and liability to terminal apoplexy, uremia, or cardiac dilatation. This is the natural history of a case of heart disease." He urges the importance of chemical examinations of supposedly healthy persons past middle life to detect the threatening conditions and with it the recommendation to those with this tendency to circulatory disease to undergo periodic courses of treatment such as those given in certain European cures which we are now seeking to copy in this country. He also counsels against the use or abuse of certain drugs, such as saline laxatives and mineral waters, which may upset the body metabolism. Castor oil is now as ever the safest and best remedy for those threatened with amino-acid poisoning. Individual treatment and observation of idiosyncrasies are also emphasized as important. Where resort to outside cures cannot be had the proper dietetic measures can be carried out at the homes of the patients, by properly qualified physicians.—*Jour. A. M. A.*, March 15, 1913.

HERAEUS MEDICINAL QUARTZ LAMPS.—The advantages of these lamps are so evident that the following short summary will suffice:

1. *Shorter Exposure*—Compared with the Iron Arc, the Kromayer Lamp requires one-half as long; compared with the Finsen Lamp, one-third to one-fifth as long.

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3. Convenience and comfort for doctor, patient and attendant.

4. Cheapness in consequence of the small current consumption (approximately 4 amps. with the Kromayer Lamp and still less with the "Miniature Alpine Sun" compared with 20 amps. in the case of Iron Arc and Finsen Lamps). To produce with the Kromayer Lamp the same therapeutic effect requires one-fiftieth to one seventy-fifth the current used with the other sources.—*Hanovia Chem. & Mfg. Co.*, Newark, N. J.

TO ACCOUNT FOR A CHILL and pyrexia in a post-operative or post-partum course exclude pneumonia and pyogenic infection before considering malaria. On the other hand, of course, malarial recrudescences are sometimes precipitated by operation and by parturition; and, too, it is important to bear in mind that malarial seizures are occasionally marked by vomiting and localized pain and tenderness in the appendix region, easily leading to a mistaken diagnosis.—*Amer. Jour. Surg.*

SEX ETHICS.—W. B. Konkle points out that the march of morals is slow, and that sexual morality constitutes no exception to this rule. It cannot be predicted when love will extinguish lust, and solicitude for, and devotion to the interests of posterity will supplant tyrannous impulse toward self gratification. It is known, however, that many fields of labor are involved in the working out of the problem, and that much must be done in each of them. The eugenicist must look to the improvement of the human stock. The pediatricist must see that childhood and youth are not impaired or vitiated. The andrologist must be not simply a specialist in venereal diseases—he must do for man what the gynecologist is doing for woman. The sanitarian must make earth and its abodes harmless and healthful. The sociologist must get things so adjusted that there will be peace and content and concord in the human hive. The theologian has a most important part to play. He must keep God in the thought of men as the One who dictates duty and creates responsibility.—*Exchange.*

IF THE EXTREMITIES OF THE STOCKING, drawer-leg, stockinette or flannel bandage put next to the skin when a plaster cast is to be applied are turned down over the cast and then a few turns of the plaster bandage are made over them near but not at the edge of the cast, a neat and comfortable cuff or margin will be thus provided.—*Amer. Jour. Surg.*

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TAR SHOULD NOT BE EMPLOYED over wide areas of the skin as very acute poisoning may result. The scrotum, axilla and face are most sensitive to the action of tar.—*Urologic Review.*

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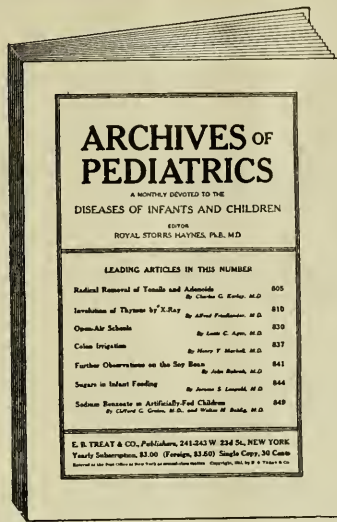
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The most credit-bringing, because they seldom fail to meet the exigencies of cases which have resisted all other forms of medication and very frequently entirely obviate surgical intervention where, before their employment, it positively seemed to be the last resort.—(Schering & Glatz, New York.)

IN ALL CASES presenting an intense itching, unless of a parasitic origin, it is very important to examine the urine carefully, as one frequently finds diabetes or nephritis.—Urologic Review.

CHRONIC CATARRHAL DISEASES.—Chronic catarrh never fails to indicate general constitutional debility. Local treatment is always desirable, but for permanent results efforts must be directed toward promoting general functional activity throughout the body, and a general increase of systemic vitality. The notable capacity of Gray's Glycerine Tonic Comp. in this direction readily accounts for the gratifying results that can be

accomplished through its use in the treatment of all chronic catarrhal affections, but especially those of the gastro-intestinal canal and respiratory tract. The particularly gratifying features in the results accomplished by Gray's Glycerine Tonic Comp. are their substantial and permanent character. This is naturally to be expected since they are brought about through restoring the physiologic balance of the whole organism.—(Purdue-Frederick Co.)

IF POSSIBLE, AVOID GIVING AN OPIATE for an abdominal pain until you know its cause. Morphine may mask the symptoms of an acute lesion, e. g., appendicitis, and delay the diagnosis.—Amer. Jour. Surg.

DRESSINGS IN SUPPURATING WOUNDS.—The healing of suppurating wounds may be expedited in a marked degree by the use of ECTHOL (Battle). In addition to a germicidal influence it adds to cellular resistance, as a result of which the luxuriant germ growth becomes inhibited, until finally the purulent process becomes reduced to the point where the resistance of the involved tissues turns the tide toward healthy granulation. Where such wounds are of more than ordinary size or severity, the internal administration of ECTHOL has proven a most useful adjunct to the local treatment.—(Battle & Co., St. Louis, Mo.)

BILATERAL INGUINAL HERNIAE that pop in and out of the external rings, are very apt to be direct herniae. They often contain part of the bladder on one or both sides.—Amer. Jour. Surg.

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HAY FEVER—VASOMOTOR CATARRH CORYZA VASOMOTORIA PERIODICA

By H. E. Goetz, M.D., of Knoxville, Tenn.

THIS distressing affliction of many names has long successfully combated all medical research for a positive cause, the authorities differing widely as to the etiology. Many theories have been, from time to time, advanced, and are being advanced, and "cures" offered, all of which are soon cast aside by both physician and patient with more or less disgust.

We are indebted to an English physician, named John Bostock, for the first rational description of this condition, who classed it as a congestion of the Schneiderian membrane, and thus, since 1819, it has remained until recently when exception was taken by both German and American authorities, who prefer the theory of a neurotic cause.

Let the cause be what it may and the name that which best pleases the various authorities; the fact remains that a glance at the calendar reminds us that we are fast nearing the season when we will be called upon to treat this malady. What have we in hand with which to combat the distressing symptoms and to relieve the sufferers who are sure to come to us with "red eyes and running noses?"

I have in the past used most of the remedies which have been suggested from time to time, which seemed to me to be at all rational, and with only a small degree of success. But for the past five years I have been following with marked success a routine which I propose to lay down here. I do not offer this as a "cure" but as the best

and most palliative treatment I have administered. Judiciously handled, the patient is carried through the season with little or no inconvenience except the taking of medicine a few times during the twenty-four hours.

In all cases when the circumstances will permit, I instruct the patient to present himself at my office some weeks before time for the attack to occur, at which time the mucosa of the upper respiratory tract is given attention; nasal obstructions, if there are any, are reduced and removed, and any existing catarrh treated. I have the patient use an atomizer at home night and morning and the nose and pharynx are sprayed out twice daily with Dobell's solution, to be followed with campho-menthol (N. F.), 10 per cent. in liquid petrolatum, and I instruct the patient to inhale deeply as the campho-menthol solution is sprayed into the nose. This, I find, has a tendency to lessen the severity of the attack, and if nothing more were done, the campho-menthol solution is grateful to the engorged membrane of the nose and pharynx, and once the patient has used it, it is not hard to keep him in the routine.

When the attack is on I add immediately to the above a capsule containing the following:

Dionini	Grn. $\frac{1}{4}$
Atropine Sulphatis.....	Grn. $\frac{1}{500}$
Caffeine Citrate.....	Grn. $\frac{1}{8}$

which should be taken every two hours, or until the nasal passages open and the pharynx is dry, and then every four hours to prevent a return of the distressing symptoms. Once the patient is under the influence of this combination he is at ease, and not one of the symptoms of the disease is present, nor will they return until the

drug is eliminated from the system, and the patient goes about his daily avocation in a normal way.

I ascribe the good influence upon this condition to the combined action of all three of the drugs. First, the secretions which give the most trouble are in a few minutes markedly lessened and within an hour almost entirely dried up; the sneezing abates and the injection in the sclerotic clears up; nasal respiration is resumed, and the patient not only feels normal but looks normal.

The lessening of the secretions is due to the combined action of the dionin and atropin. The dionin lessens the irritability of the peripheral nerve ending in the nose and its action as a vaso-constrictor being in harmony, makes it an ideal remedy. The mucous membrane is no longer irritated, therefore the sneezing ceases and the secretion lessens. The atropin acting favorably, too, upon the secretions and the caffeine giving a slight caffeine stimulation. all combined, brings about a most happy result.

I have had the objection offered against this combination that it would be habit-producing if continued over a season, and I will say that I have yet to see one patient to whom it has been given apply for a second supply of capsules unless his condition, namely: red eyes, excessive secretions of the eyes and nose, and sneezing, warranted him in coming to me again and taking the same, and so soon as the season is over the patients are always glad to give up the drug.

To guard against a patient obtaining the same without my knowledge I have never ordered the combination on a prescription, but have the capsules and tablets made up and dispense them from my office.

Further, I do not believe that dionin produces habit in the same proportion as other opiates. Certainly not in my experience has a habit been produced by the use of dionin.

Further, this combination does not constipate, or at least I have not had any complaints on that score.

As I said in the beginning, I do not claim this as a "cure," but it is the best remedy I have tried and is sane and harmless.

214 Empire Building.

WHILE the indigocarmine and phthalein tests are highly trustworthy in ascertaining kidney function, do not forget to get the urea output.—Urologic Review.

ALWAYS BE GUARDED IN PROGNOSIS in the case of very crusty eruptions upon the heads of children.

THE THERAPEUTICS OF VERONAL*

By William House, M.D., of Portland, Ore.

Assistant Professor of Nervous Diseases, Medical Department, University of Oregon.

VERONAL is being more and more extensively used and abused. It is prescribed by physicians in an increasing variety of cases. The druggist dispenses it freely and the layman has learned to ask for it. Harm mingles with the good it does. This state of affairs seems to justify the present paper.

My original paper on veronal¹ was based upon the administration of more than 3000 doses given to about 200 patients, at least one-half of them insane, and the remainder victims of lesser disorders of the nervous system such as neurasthenia, alcoholism, and drug habits, treated over a period of three and a half years in a private sanatorium. In institutional work, because of the constant attendance of nurses, the field of drug hypnotic therapy is broader than in private work, for in the latter greater caution must constantly be exercised if one would avoid the dangers of self-medication and drug habituation.

During the last six years I have prescribed veronal more sparingly. Most of my cases have been in private neurologic practice and have included practically every complaint accompanied by insomnia or nervous restlessness. Certain modifications in what my surgical friends might speak of as the "technique" of administration have resulted, together with the broadening of the possibilities of the drug on one hand and a better appreciation of its limitations and contraindications on the other.

Review of Physiological Action.—The average dose of veronal necessary to cause sleep is $7\frac{1}{2}$ grains. In normal individuals, or those who suffer from mild forms of insomnia only, this quantity will induce quiet sleep in from twenty to forty-five minutes. In those who suffer from more severe forms of insomnia a larger quantity may be needed—up to 15 grains being a physiological dose in reasonably robust patients. Sleep lasts eight to twelve hours. A small proportion of patients, especially elderly ones, experience slight vertigo on rising, apparently due to reduction in the blood-pressure which seems to be a common result of veronal administration. It quickly disappears after the morning cup of coffee. In susceptible persons sleep may last twelve hours or more. In such persons sleep is so sound that it is often possible to raise the

* Therapeutic Gazette, May 15, 1913.

eyelids without disturbing them. During sleep the heart is a little slower than normal, and respirations may seem a bit shallow.

The skin may be pale but is never cyanosed, as so often happens from chloral. The pupils are dilated but react to light.

Rarely a susceptible patient will suffer from dizziness after a single dose of veronal as small as five grains. After prolonged daily use certain patients suffer vertigo, weakness in the legs, and lessening of physical activity. This in itself in violent and disturbed patients may be a desirable result. In time the urine may become scanty and dark. I have examined many specimens from patients who were using frequently repeated doses over long periods and have never found albumin or sugar. In patients who suffer from delirium, or mania, or who are in a state of mental hebetude, the tendency to ignore bodily functions may be increased. Thus occasionally urinary retention occurs and serves as an indication to substitute some other method of causing sleep.

Therapeutics.—All hypnotic medication has limitations which should be borne in mind. No hypnotic should be given carelessly or in cases in which sleep can be induced without its aid. Many persons are susceptible to drug influences and easily converted into drug habitués. To such persons hypnotics should rarely be given. With these reservations, peculiar to every drug of its class, veronal may be given to any patient needing a hypnotic, except such as are wakeful because of pain. Veronal fills all the indications which in past years were met with chloral, but with infinitely less danger, either immediate to life or the formation of a drug habit. Its realm includes insomnia, intense restlessness of mind and body, as in mania and alcoholic delirium, and extreme mental pain such as occurs particularly in severe melancholia. In addition to producing sleep it serves the purpose of quieting patients, so that they will find time to eat or will overcome their inhibitions and delusions and eat sufficient to maintain strength.

Special Indications.—For the insomnia of neurasthenia, when properly given, veronal induces restful sleep. In certain cases it is delayed in acting, and patients lie awake or doze the early part of the night, and are dull and sleepy next day. This may often be prevented by administering a preliminary dose, one-third or one-half the entire amount to be given, at five o'clock, and the balance at bedtime. The first dose will then

be ready to act, and sleep will, as a rule, come quickly after the second. By morning the effects of both doses will have passed off, and the patient may be expected to be free from sleepiness during the day.

Neurasthenics, because of their constant self-examination, should be guarded from the dangers of self-medication. For this reason, when possible, it is well to give veronal to the nurse or other responsible person, prescribing it in small powders (3 to 5 grains) and ordering only as many as may be needed, without permitting the patient to know either the name or the amount of the drug so given. After a few nights' sound sleep the dose may be lessened without the patient's knowledge and again increased as indications arise. Though necessary to guard against dangers, it must not be forgotten that, in many neurasthenics, the imperative need of sleep must be gratified by efficient hypnotics. Especially in elderly persons, continued insomnia is infinitely more dangerous than are the effects of any of the milder hypnotics now so commonly used.

To *psychasthenics* (cerebral neurasthenics), who present few physical symptoms and who require only an occasional hypnotic, I often dole out the powders one or two at a time, sufficient only for one or two nights' rest, and make the patient call for more when needed. By this means the tendency to excessive medication is prevented and the patient is obliged to use every reasonable means, psychic and otherwise, to induce sleep without drugs. Neurasthenics and psychasthenics often sleep from doses as small as 4 or 5 grains.

In acute *alcoholism*, veronal replaces chloral and frees patient from the extraordinary danger of that drug. Caution should be used not to overdose, and veronal should be used only to supplement the customary bromide and gentian. Much disturbed patients will often sleep from 15 grains of veronal, and, if bromide be given freely on awaking, will rapidly improve. The second night 10 grains may be sufficient, the third night 5 grains, and the fourth night none will be needed, providing alcoholics have been discontinued, and substitutes therefor (*e.g.*, hot milk and capsicum) administered at regular intervals.

The intense activity of *mania* will often cease if veronal be administered. Five grains, repeated every four to eight hours, may be used over fairly long periods, without harm. *Melancholics*, who would otherwise have to be fed with a tube, eat freely under its quieting influence.

Paretics, otherwise unmanageable, can often be kept quiet by veronal. I succeeded in keeping one such patient at home for two years, after he had kept a sanatorium constantly excited by his quarrels and fights. While under the influence of veronal, which he took willingly, as he partly realized his mental state, he was quiet, tractable, and controllable. When free from it he fought frequently.

In the withdrawal treatment of *morphinism* or *cocainism*, veronal is the best temporary substitute I have yet found.

In *hysteria* it is an excellent substitute for bromides, which are often refused because of their salty taste and irritating effects on the stomach. And it will often control patients who do not respond to bromides at all.

Chorea has been added to the list of diseases in which veronal may be of value. A recent patient was a child of nine whose violent contortions were partly controlled by 3-grain doses, after bromide had failed. The suggestion of its value here remains tentative.

For the relief of *vomiting of pregnancy* Reich and Herzfeld² have used veronal with excellent results. It has been recommended and used with some success to relieve *seasickness*.^{3,4}

I have tried veronal in epilepsy, but have found it valueless, except to relieve the maniacal outbursts which occasionally occur.

Contraindications.—Because of the tendency of veronal to darken the urine, it seems to me that *acute nephritis* is an absolute contraindication. Chronic nephritis with pale, abundant, albumin-free urine, is not a contraindication to moderate occasional veronal dosage. *Extensive heart disease*, especially aortic regurgitation, is probably a positive contraindication. Milder forms of heart disease contraindicate continued rather than the occasional use of veronal; though in the presence of heart disease of any degree it is wise to give any hypnotic cautiously.

Veronal ought never to be used to relieve *insomnia* due to *pain*. Only enormous doses will cause sleep, which will even then be disturbed. Opium or the coal-tar derivatives will prove more satisfactory in such cases.

Elderly persons often experience vertigo following veronal, and with them it should be tried cautiously at first. Trional may be as effective and seems to cause less after-effects in the aged. If trional fail, veronal may be given, at first in small doses, which can be increased if necessary. Staggering,

vertigo, weakness, etc., will indicate the wisdom of withdrawing the drug.

It is probable that persons of any age in whom blood-pressure is below the normal ought not to be given veronal if results can be obtained from other sedatives.

Toxic Symptoms.—A number of deaths have been reported from large doses, usually above 100 grains. My own experience indicates that a single dose of 30 grains may cause danger symptoms, though I know of a frail, melancholic girl who received from 20 to 35 grains in divided dosage every day for two months, and seemed to thrive on it.

Cumulative effects of almost any hypnotic drug given by the mouth sometimes occur. Veronal is no exception, and aged patients may collapse from repeated dosage which was at first ineffective.

Toxic symptoms are vertigo, diplopia, staggering, dark, scanty urine, sometimes with retention, feeble pulse, shallow respiration, and gradual development of coma, increasing until death closes the scene.

Dermatitis^{5,6} has been reported in a number of cases, but appears to be limited to elderly patients.

Incompatibility.—The following case indicates a possible drug incompatibility which I have observed.

An emaciated girl of twenty-four, suffering from melancholia, who had eaten but little food for six weeks and only when forced, was restless, moaning, and unable to sleep. At my first visit I ordered 5 grains of veronal at 5 o'clock, to be followed by 10 grains six hours later. She slept soundly, and on awaking ate better than in weeks. The relatives were highly pleased, and next morning, in telling me of the condition over the phone, said the patient was badly constipated. Calomel and soda, to be followed by an enema, were ordered, and the nurse directed to give no other medicine until the bowels had been thoroughly emptied. That night the patient was again restless, and without orders was given 15 grains of veronal. She sunk into a quiet sleep, but the next morning could not be aroused. I found her semicomatose, with shallow respirations and feeble, rapid pulse. She could be aroused only sufficiently to answer yes or no to questions, and would again become half-comatose. She was fed for two days by means of a nasal tube. During that time the excretion of urine was limited to a few ounces drawn with a catheter. Her skin became dark yellow. Notwithstanding the use of stimulants she became more and more feeble, and died during the third day.

I regarded this case as probably hopeless from the beginning, yet think that death was hastened by the veronal, but believe the calomel equally responsible because of its exhausting and depleting influence. Since then I have observed a number of patients who were depressed when these drugs were given near together, and believe that veronal ought not to be administered until the effects of the calomel have disappeared, and *vice versa*.

How long may veronal be safely given? This is an important question not easily answered. I have in mind many neurasthenics who have taken the drug over months. A physician took veronal in 5- to 10-grain doses almost every night for more than a year without ill effects, and at the end of that time, having recovered from his neurasthenic state, was able to discontinue it without effort. Another physician who took a fluid preparation for several months suffered severely for a week, when the medicine was withdrawn. Any hypnotic drug is unsafe if given to a patient without control by others; but if given in charge of a nurse and suitable precautions observed, veronal may be administered with safety over many weeks. The symptoms which indicate that it should be discontinued are vertigo, weakness and staggering, puffy eyelids, and above all else dark, concentrated urine. When this appears the drug should be discontinued and a mild diuretic substituted. If, for any reason, it seems wise to give veronal over any continued period, it is my practice to give spirit of nitre and potassium acetate in small doses during the day, and the dark urine quickly disappears. All patients who require hypnotics over continued periods should be given relief from possible toxic effects by the substitution of other forms at intervals of a week or less, and if this rule be followed veronal may be continued over long periods without evil effects.

Treatment of Poisoning.—If it be suspected that the stomach contains any unabsorbed veronal, no hot drinks should be given, as these will hasten absorption. Instead the stomach tube may be used. As soon as danger from this source has passed, hot coffee or tea should be given freely, by feeding tube if necessary. Nitroglycerin by mouth or hypodermically will serve to stimulate and aid in increasing renal activity. External heat should be applied.

Caffeine may be used, but there appears to be no indication for strychnine or digitalis, as the heart is apparently not affected. As soon as immediate danger is over, diuretics, especially potassium acetate and

spirit of nitre, should be given as they serve to aid renal activity, which is always diminished in veronal poisoning.

Administration and Dosage.—Veronal will give best results when prescribed in powder form. I am vigorously opposed to the use of tablets containing it, for the reason that I have never been able to get results from them, and attribute this either to substitution, to some influence of the excipient, or to the increased insolubility of tablets generally. Secondly, I object to tablets because they favor self-medication.

Fluid preparations are equally objectionable for the reason that they can be prepared only with the aid of ether. The only true veronal habitué I have yet observed was taking a fluid preparation and undoubtedly getting most of his pseudo-pleasure from the ether it contained. To get 8 grains of veronal from most of the fluid preparations necessitates the use of four drachms of fluid, enormously increasing the cost of the drug, lessening its efficiency, and giving an appreciable quantity of ether.

For the relief of simple insomnia, 5 to 15 grains of veronal may be given, divided if preferred, part being given at 5 or 6 o'clock and the balance on retiring. For sedative purposes 5 grains may be given every four to six hours during the day and a double dose at bedtime. Probably the maximum quantity in twenty-four hours ought not to exceed 30 grains. Hot malted milk remains the best vehicle. It disguises the taste, acts as a solvent, is itself sedative to many persons, serves to conceal the quantity administered, making reduction in dosage possible without the patient's knowledge, or, conversely, for unwilling patients, making concealment possible. As a substitute hot water or weak tea serves well.

To those who suffer from vertigo and slight headache after veronal, Van Noorden⁷ has recommended that the dose be reduced and phenacetine in 3-grain doses added. He thinks this combination most effective and desirable.

To delirious patients and those who refuse to take food, the drug may best be given in food administered by means of a nasal tube. Medication by rectum is too unreliable in these cases as everything is expelled promptly. Many times if sedatives be given through the nasal tube the patient will take both food and drugs normally when once quieted by the first dose.

SUMMARY.

Veronal Indications.—Insomnia and extreme nervous restlessness. Specifically, neurasthenia, psychasthenia, acute alcohol-

ism, maniacal excitement, epileptic mania, paresis with excitement, extreme melancholia, especially with suicidal tendencies or refusal of food, withdrawal treatment of morphinism and cocaineism, hysteria, and probably seasickness, severe chorea, and vomiting of pregnancy.

Contraindications.—Acute nephritis, extensive heart lesion of any kind, especially myocarditis and aortic regurgitation, in somnia due to pain.

Partial Contraindications.—Use cautiously in any condition in which urine is dark and scanty, chronic interstitial nephritis, heart lesions fully compensated; old age, in which it may be invaluable, but should be tried cautiously at first, any condition in which blood-pressure is abnormally low.

Incompatibility.—Clinically veronal appears incompatible with calomel if administered near together.

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DIAGNOSIS AND TREATMENT OF DIPHTHERIA*

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THE fact that diphtheria has received such scant consideration from the laryngologists of the country is my reason for bringing this subject to the attention of this society. One cause of this apparent neglect is the fact that in many of our large cities patients with this disease are promptly transferred to contagious hospitals. This procedure develops a certain number of physicians in the hospital highly skilled in diagnosticating and treating diphtheria, and who are especially skilled in performing intubation and tracheotomy, which measures are at times so necessary for the saving of life. In consequence of this prompt transfer of patients, laryngologists of the cities see fewer cases, and are, as a result, called upon less frequently than formerly, to perform intubation or tracheotomy. The early use of antitoxin

has likewise materially reduced the number of cases requiring operation.

In our smaller communities the general practitioner still, to a large extent, attends his diphtheria cases alone, though I know of no disease where the internist and laryngologist can, to a better advantage to the patient, work hand in hand. The throat man can often be of service in determining the extent of the lesion, particularly as to the nose and larynx, and likewise diagnosing early complications as a beginning otitis media. The laryngologist, on account of his being accustomed to examine and treat the larynx, is better prepared to perform intubation when needed.

The diphtheria organism may attack any mucous membrane, and likewise the abraded skin, as in eczema and wounds. Diphtheria of the pharynx is the most common form, and the one to which I shall first direct your attention. Unfortunately there is no method of diagnosticating, with positiveness, diphtheria from "ordinary sore throat," so called, except by finding the characteristic organism, Klebs-Loeffler bacillus. Even when a culture is taken, one negative finding does not exclude diphtheria, if the clinical symptoms are suggestive, and in the absence of a positive finding the patient should not be denied the benefit of antitoxin. The case which is reported later illustrates this point. The cause of a negative finding in cases of true diphtheria is not always the fault of the laboratory. It may be due to a failure to touch accurately the edge of the membrane, perhaps due to an imperfect view of the throat. One has often to contend against a struggling child, and frequently, too, in a poorly lighted room. It is also necessary to bring the inoculated part of the swab in contact with the surface of the blood serum. The use of antiseptics within an hour or so of the time of taking the culture lessens the chances of a growth on the serum tube.

The diagnosis of diphtheria has been relatively easy since Klebs, in 1883, discovered the organism in the diphtheritic membrane, and Loeffler, in 1884, one year later, isolated the organism—hence Klebs-Loeffler bacillus. It is a small rod of irregular size and shape. It stains unevenly with Loeffler's alkaline methylene blue, giving at times a beaded appearance. This staining peculiarity is of great diagnostic importance, and is more marked in a culture twelve or more hours old than in a young culture, or from a swab of the throat. There is a tendency for the organism to assume a parallel arrangement, which has

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served me well in doubtful cases. This is more noticeable from a culture than from a swab. The organism is stained by Gram's method. As a differential stain, there is probably none better than Neisser's. Here the peculiar granules are stained dark blue, while the body of the organism assumes a light brown color. The most suitable culture medium is blood serum. On this it grows rapidly at body temperature, distancing the common pus organism, so, at the end of six or eight hours a diagnosis can usually be made with the microscope. In some cases a staining of the swab will give valuable aid in the diagnosis, though a culture will be found more reliable.

Although the bacteriological findings are of first importance in making a correct diagnosis, but as before stated, when in doubt give antitoxin, if the case is at all severe. In primary laryngeal cases a negative finding is of little value if the swab is only taken from the pharynx. A laryngeal applicator could in these cases be used to advantage.

Cultures should be taken of all sore throats, particularly in infants and children. It is impossible to state otherwise with accuracy, whether the case be one of "simple tonsillitis" or diphtheria. A correct diagnosis is important, not only for the safety of the child, but also from a public health standpoint. The following case will serve to illustrate two points: in the first place, the importance of not waiting for a positive finding before giving antitoxin; and secondly, the necessity of administering large doses of antitoxin:—

Patient—L. C. Age 7. First seen by me at Asheville, N. C., in consultation with Dr. Powell on Sunday night, July 2, the fifth day of her illness. The attack began with all the clinical appearances of simple tonsillitis. The culture negative. On Saturday, the day prior to my visit, the temperature was normal till 6.30 P. M., when it registered 99.5. When I first saw her on Sunday night, the picture had changed, for the membrane had spread from the right tonsil to the anterior pillar, of the same side. A patch was also seen on the left tonsil. Temperature 103.5. Neck very much swollen, and head extended to facilitate breathing. Patient showed signs of severe toxemia. Administered at once 10,000 units of antitoxin. The following morning patient no better; given 20,000 units of antitoxin. That afternoon patient still dangerously ill. Culture positive for the first time. Seen with Dr. Dunn, and 40,000 units given. The next morning seen with Dr. Briggs, patient slightly better, but still dangerously ill. Repeated 40,000 units. That afternoon patient much better, and only 20,000 units. Small doses of antitoxin were continued for a few days, till all signs of membrane had disappeared. She was given, during her illness, 170,000 units of antitoxin. Her recovery

was complete and uneventful, except for some paralysis of her palate and eye muscles. These had all disappeared at the end of nine weeks. Her pulse continued rapid for some time, which required absolute quiet. Stimulants were given as indicated.

Hoffman's bacillus closely resembles the diphtheria bacillus, though it is somewhat shorter and thicker. It does not show the polar bodies by Neisser, nor is it pathogenic to guinea-pigs.

Bacillus Xerosis, as recently described, cannot be distinguished with certainty from Klebs-Loeffler bacillus. It is said that B. Xerosis forms acid from saccharose, not from dextrin; while B. diphtheria forms acid from dextrin, and not from saccharose. However, the final test in differentiating B. diphtheria from all so-called "pseudo diphtheria" bacilli is by animal inoculation. This slow method of differentiation can only be of use from a public health standpoint.

The clinical diagnosis of diphtheria is often difficult. It is particularly so in mild cases affecting the tonsils, and also where the larynx is primarily affected. Temperature is of little value in making a diagnosis of diphtheria. It is frequently not high, ranging from 99° to 102° F. Strange as it may seem, the temperature may be normal in cases of severe toxemia. A sudden rise in temperature suggests a beginning otitis media, or pneumonia. The pulse, like the temperature, is a poor guide in the diagnosis, for it may vary from a slow pulse to a very rapid one. The extremes, as a rule, are of serious prognostic significance. The volume of the pulse soon becomes small owing to a myocarditis. The depression is great in cases of severe toxemia, though in mild cases this need not be the case. It is too often said by the attending physician, "The patient is not sick enough for diphtheria." Follicular tonsillitis usually makes one seem sicker than true diphtheria. The temperature is usually higher. Before the appearance of the membrane, there may be observed a peculiar plum color of the mucous membrane of the pharynx, particularly evident on the soft palate. There may be considerable edema present. Valuable time in the treatment may be saved by this early diagnosis. The membrane is at first of a grayish white color, though not unlike the membrane due to the pus organism. The cases of septic sore throat which occurred in Boston from the milk epidemic of 1911 had some clinical resemblances to diphtheria. The bacteriology was different. The situation of the membrane is of great diagnostic im-

portance. If found on the pillars, or any part of the pharynx other than the faucial tonsils, our suspicions should at once be aroused that we are not dealing with a case of simple sore throat. The odor in septic diphtheria may be foul. There is usually seen a peculiar red margin at the edge of the membrane, which has served me well for diagnosis in certain cases. The use of violence in removing the membrane to see if bleeding takes place is of little value, and is unjustifiable. Mucus in the throat may be gently swabbed away without harm to the patient. Albumen in the urine is suggestive of diphtheria. Early glandular involvement is a suspicious symptom of diphtheria, though the Boston milk epidemic of 1911 showed this symptom very frequently. There may be edema of the neck, which may extend down over the chest. This is strong evidence of diphtheria, and indicates a severe type of the disease. These are cases requiring large dosage of antitoxin.

Nasal diphtheria is the most contagious form, and from a public health standpoint, is of the first importance. The membrane may be in the nose proper, or the nasopharynx. In the latter situation, that is, in the naso-pharynx, the symptoms are more severe, owing to a rapid absorption through a bountiful lymph drainage. On account of the difficulty of inspecting the naso-pharynx of very young children, the diagnosis of this type of diphtheria must usually be made from the symptoms, and finding the characteristic organism. There is noted a serous or serosanguinous discharge from the nose, which may excoriate the upper lip. When the membrane is in the nose one can usually see the membrane on rhinoscopic examination. Frequently the membrane may be confined to one side of the nose, and then you get a one-sided discharge, which simulates a foreign body in the nose. There may be nasal hemorrhage of some severity. The patient, if old enough, complains of a stopped-up feeling of the nose. The symptoms may persist for a long time, and may be so mild as not to be suspected as being diphtheria. As before stated, these cases are very contagious and become a menace to public health.

From autopsies performed by Councilman and Mallory at the South Department, Boston, it is probable that the sinuses of the nose, particularly the antrum and sphenoid, harbor the diphtheria organism for a long time. There may be an extension of the membrane from the nose to the ear, pharynx, larynx, or eye.

Diphtheria of the eye is a serious condition, particularly as to sight, and frequently

results from an extension through the tear duct, though it may be due to accidental inoculation from other regions.

When the larynx is primarily involved, it is difficult of diagnosis, especially in very young children. On account of the difficulty of inspecting the larynx in children by means of the indirect method, the laryngeal specula as devised by Mosher and Jackson, are useful for direct laryngoscopy. The symptoms of laryngeal obstruction from a diphtheritic process, come on slowly, and in this respect differ from a foreign body, and also spasmodic croup. At first there is hoarseness, followed by aphonia, evidenced in infants on attempting to cry. In a few hours this obstruction becomes greater, and we get signs of the patient breathing through a stenosed larynx, such as stridor, both inspiratory and expiratory in character, rigidity of the sternocleidomastoid muscles and retraction of the abdominal muscles, and supraclavicular spaces. There may be pallor instead of cyanosis, a fact which is easily overlooked when the question of giving relief by operative interference is considered. When the obstruction is lower down, as a foreign body in the bronchus, or bronchial glands, there is more expiratory stridor. The auscultatory signs of the chest in cases of foreign body, are the absence of normal respiratory sounds over the area where the entrance of air is obstructed. When the obstruction is high up, as in retro-pharyngeal abscess, the stridor is more inspiratory in character. The diagnosis of retro-pharyngeal abscess can best be made by palpation with the index finger.

Catarrhal spasm of the larynx, or spasmodic croup, as it is sometimes called, may be mistaken for laryngeal diphtheria, but the former usually comes on suddenly at night, and there may be a history of previous attacks. The temperature is usually lower in spasmodic croup, though too much reliance must not be placed on this point in the diagnosis. Improvement usually follows in a few hours after appropriate treatment; not the case in laryngeal diphtheria unless relieved by operation.

Acute laryngitis in infants simulates diphtheria very closely. The constitutional symptoms are usually milder, except the temperature, which may be higher than in laryngeal diphtheria. Aphonia is not so marked. If there be a patch on the pharynx, glandular enlargement of the neck, or albumen in the urine, think of diphtheria. Direct laryngoscopy should be practised in all doubtful cases.

Pneumonia resembles laryngeal diphtheria in the marked dyspnea, but there is usually no stridor. There can be elicited the physical signs of pneumonia, and probably a leucocytosis.

Jackson has described a laryngo-tracheitis due to the influenza bacillus, which can only be differentiated from diphtheria by direct inspection. There is no membrane nor Klebs-Loeffler bacilli present.

In distinguishing the laryngeal symptoms of measles, we should look for Koplik's spots, which appear before the skin rash. The eye and nose symptoms appear early in measles. A culture from the throat should, of course, be taken.

Diphtheria may be a complication of measles. In fact, it complicates this disease more frequently than any other. Early laryngeal symptoms point to measles alone, while a later stenosis of the larynx in measles suggests diphtheria as a complication.

The diagnosis of diphtheria from scarlet fever, when a membrane is present, can only be made by the microscope. The general redness of the fauces, the appearance of the tongue, and perhaps the skin rash in scarlet fever may assist in the clinical diagnosis. One should be on the lookout for a complication of scarlet fever with diphtheria.

Vincent's angina has been very clearly and fully described by Place. It may be mistaken for diphtheria. It is more chronic in nature, and usually shows a dirty patch on the tonsil, or elsewhere in the mouth. Place says, "It differs from diphtheria in being always an ulcero-membranous process, which diphtheria never is primarily." The finding of the *B. Fusiformis* and the *Spirillum gracilis* confirms the clinical diagnosis. Syphilis of the nose and pharynx may stimulate diphtheria, but with the finding of the specific spirochete and the Wassermann reaction, the diagnostic difficulties should be less.

Inherited syphilis of the nose in a young child may be mistaken for diphtheria, but there are usually other evidences of syphilis. It is usually less acute in character, and there is the absence of Klebs-Loeffler bacilli.

Secondary syphilis of the throat is characterized by a thin layer of necrotic epithelia with a well defined border. There is usually less constitutional involvement, though there may be fever with syphilis.

Later forms of syphilis of the throat are characterized by a deep ulcer, with a very much inflamed border. The appearance is

out of all proportion to the symptoms, for there is usually little pain on swallowing. With the Wassermann reaction in syphilis and the finding of Klebs-Loeffler bacilli in diphtheria, there should not long exist doubt in the diagnosis of syphilis and diphtheria.

Traumatic exudates from operative procedures, as tonsillectomy, simulate diphtheria. A close inspection and a history of the case should remove all doubt. It should be remembered, however, that Klebs-Loeffler bacilli may be a complication of an operative procedure, so if there exist constitutional symptoms out of proportion to the appearance of the wound, a culture should be taken.

Leptothrix-mycosis may be distinguished from diphtheria by its chronic course, often without symptoms.

The projections on the tonsil are conical and show a growth of the leptothrix fungus.

In all lesions simulating diphtheria, the microscope should be promptly used in clearing the diagnosis.

Preventive Treatment. Patients should, if possible, be sent to an infectious hospital. In lieu of this, isolation and quarantine should be rigidly enforced at home. Immunizing doses of antitoxin, 500 to 2,000 units, depending somewhat on the age, should be administered to all exposed children. Adults should be carefully watched as to their noses and throats.

There is hardly a question but that epidemics of diphtheria are kept up by "carriers," so, as a preventive measure, these cases should be sought for and isolated. Seligmann lays stress on this point, and also speaks of nasal diphtheria being liable to convey the infection for a long period of time.

Diseased tonsils and adenoids are especially liable to harbor the organism. The writer, in 1908, was the first to remove diseased tonsils and adenoids for the purpose of getting rid of the diphtheria organism in a "carrier," and soon the patient was rid of the infection. Since that time this method has been frequently practised in certain localities with marked success. It would not be advisable to practice this method as a routine procedure, but it is suitable for certain selected cases. An immunizing dose of antitoxin should be given at the time of the tonsil operation, to prevent infection of the wound with Klebs-Loeffler bacilli. Schectz, a Danish physician, some years ago, recommended spraying the throat with a living culture of sta-

phyllococcus pyogenes aureus, to rid the throat of diphtheria infection. Page, Lorenz and Ravenell have practised the overriding of diphtheria throats with staphylococcus pyogenes aureus, and report good results. As the two organisms are found growing side by side in throats, and can likewise be grown together in culture tubes, it is not easy to understand the reason for the disappearance of diphtheria organism by this method of treatment. It would seem as if there is an element of danger in a spray of living staphylococci. Inasmuch as "carriers" have, as a rule, abnormal throats or noses, it would seem more rational to treat these abnormalities with a hope of ridding the patient of diphtheria bacilli. Place tells me of a "carrier" who got rid of his infection when a foreign body was removed from the nose. At least two negative cultures, and probably three, should be required before release from isolation. The writer saw last year, while working at the South Department, Boston, a child who had been in the institution more than a year awaiting the required negative cultures. Diphtheria vaccines have been used with some success in ridding "carriers" of diphtheria bacilli.

Serum Therapy. Under treatment, I shall consider first, antitoxin, for it is by far the most important. It is an absolute specific when given in time and in sufficient dosage. Of the 241 doctors, nurses and attendants contracting diphtheria at the South Department, Boston, not one succumbed. It is not necessary to consume your time in offering proof of the efficiency of antitoxin in this formerly much dreaded disease. I assume that every member of this society is a believer in the life-saving value of antitoxin. It should be given early, and in sufficient dosage to produce the desired effect. The size of the initial dose should vary from 5,000 to 50,000 antitoxin units, and more in the malignant cases which have existed for some time. As McCollom rightly says, the age, over two years, has nothing to do with the size of the dosage. It is a chemical reaction, and not a physiological one, so there is no reason to doubt but that a young child may have as many toxin units as a fully grown man. They certainly have a lessened resistance on account of their tender years. The antitoxin is, in no sense, an antiseptic, but in neutralizing the toxin, it gives the leucocytes and other protective forces a chance to get in their work.

Text-books have been very inadequate in the size of the dosage recommended. Ty-

son, in his "Practice of Medicine," recommends 1,000 to 2,000 units, depending upon the severity of the attack! Ballenger recommends 2,000 to 3,000 units in what he terms ordinary diphtheria; 3,000 to 5,000 units in laryngeal cases. McCollom, in his classical paper on "Diphtheria" in Osler's Modern Medicine, says: "If there is a very extensive membrane when the patient is seen for the first time, 8,000 to 10,000 units should be given, repeated every four or six hours, until the characteristic effect of the serum is produced, namely, the shriveling of the membrane, diminution of the nasal discharge, a correction of the fetid odor, and general improvement."

Since the above was written, the dosage at the South Department, Boston, has been increased, and the mortality likewise reduced. It may be of interest to state that the mortality at this large infectious hospital, from 1888 to 1894, the year of the introduction of antitoxin, was 43.2%. From 1895 to 1904, inclusive, it was 11.48%. For the year 1912 it was 7.6%, including laryngeal and moribund cases. The greatest reduction was in the very severe cases where massive doses of antitoxin were administered.

Both nasal and laryngeal diphtheria require large doses of antitoxin. Abraham Levinson says that the curative dose in nasal and laryngeal cases should not be less than 25,000 units. Diphtheria of the eye, on account of the danger to sight, requires large doses of antitoxin. It is far safer to give larger doses than is required to neutralize the toxin, which is so destructive to the vital cells, than to leave a portion free to exert its deadly effect on the tissues of the body. There is no way of estimating, with accuracy, the amount of toxin requiring neutralization, but the amount depends somewhat upon the duration of the illness, the extent of the surface involved, and lastly, the virulence of the organism. A mild case of pharyngeal diphtheria should receive, as a single dose, from 5,000 to 10,000 antitoxin units; a moderately severe case of several days' standing should receive 20,000 to 25,000 units, and a severe case, 50,000, and more if the case seems desperate. The dose should be repeated at intervals of six or eight hours till marked improvement takes place. The size of the dose can soon be reduced, and smaller doses continued until the membrane has completely disappeared. Place strongly advises getting all the required antitoxin in during the first three days of the treatment, even if 500,000 units are required. This dosage,

of course, only refers to the desperately ill cases.

Ehrlich says two poisons are produced by the growth and multiplication of the diphtheria bacillus. To one he gives the name of toxin, and to the other toxon. To the former he attributes the early acute symptoms, and to the latter, the toxon element, he attributes the late paralyses. The affinity is stronger between the toxin and antitoxin than between the toxon and the antitoxin, hence the importance of having a surplus of antitoxin to neutralize the toxon of element after the toxin has been chemically disposed of.

There is what is termed a precocious form of palatal palsy occurring about the fifth day of the disease. This is not so serious as the late forms, occurring usually within the first three weeks of the illness, but the early form is somewhat of an index to the severity of the illness.

Rosenau and Anderson have shown by animal experimentation the uselessness of giving antitoxin with a hope of influencing the paralyses occurring late in the disease.

My favorite situation for injection of the antitoxin is in the loose areolar tissue of the back, near the angle of the scapula. This region is relatively free from the sensory nerves, is protected from vital parts, and lastly, the operation is not witnessed by the patient. This last point is quite important from a psychic standpoint. The site selected should be sterilized, and the situation should be changed from time to time, as there is usually a local reaction.

Fritz Meyer strongly recommends intravenous injection of antitoxin in serious cases—says much time is saved in the absorption. Eckert, Hoesch and others advise intramuscular injection as being more rapid of absorption than the subcutaneous method.

Danger of Antitoxin. The danger of antitoxin has been grossly exaggerated. That a few deaths have taken place following its administration cannot be denied, but they are too infrequent to be seriously considered in view of the dangers of diphtheria when left untreated by antitoxin.

Park says that, "In over 100,000 patients immunized (New York) since the introduction of antitoxin, there has been but one known fatality due to the serum injected. This child suffered from status lymphaticus and died shortly after an injection of 1000 units." Place says that more than 100,000 doses of antitoxin have been administered to over 40,000 patients

at the South Department, without a dangerous symptom attributable to antitoxin.

The work of Theobald Smith, followed by the work of Otto, Rosenau and Anderson proved that horse serum administered to guinea-pigs sensitized them, after an elapse of about ten days, to the same kind of serum. A small second dose was often sufficient to cause death, with symptoms of distressed respiration, cyanosis, convulsion and finally death. This phenomenon has been termed anaphylaxis. While this reaction is common in laboratory experiments with guinea-pigs, it is *very* rare clinically. It would be a great pity if these interesting laboratory experiments should curtail the use of antitoxin in diphtheria. It has been thought that the rare appearance of severe symptoms following the use of the first antitoxin dose is due to a natural "sensitization," or anaphylactic condition. The symptoms are marked respiratory distress, and may be due to the contraction of the smaller bronchi. Asthmatics, hay fever patients, and those sensitive to the emanations from the horse are more liable to have symptoms of anaphylaxis on administration of antitoxin. Adults seem to be more subject to this condition than young children. It would seem, if such patients require antitoxin, that they should be given a preliminary dose of atropine, followed by a tentative dose of antitoxin. The writer resorted to this procedure on one occasion where the patient had experienced severe respiratory disturbance following a dose of antitoxin in a previous attack of diphtheria. The patient was given a full dose of atropine, hypodermatically, just fifteen minutes prior to the antitoxin. Concentrated antitoxin was then administered in small doses every fifteen minutes until the required amount was given. In patients in whom there is a suggestion of a sensitized state, this method is worthy of a trial. It may be of interest to analyze the sixteen deaths reported in the literature following the use of antitoxin. The size of the dose in each case was small, varying from 500 to 4000 units. Only six of the sixteen cases were suffering from diphtheria, and six others, owing to exposure to diphtheria, were given small immunizing doses. The remaining four did not have diphtheria at all, but were given antitoxin for asthma. Nine of the sixteen gave a history of asthma in some form.

There is another condition known as "serum sickness" following at a variable interval the administration of antitoxin char-

acterized by rashes of various kinds, with intense itching, joint pains and fever. There may be some edema. The pulse is quickened, but of good strength. This condition may at times be mistaken for measles or scarlatina, though there are not the usual symptoms of these diseases. Park says that about 20% develop the rash. The reaction is certainly less in the concentrated serum where the irritating proteids have been removed by the Gibson process than in the mere bulky product. Calcium chloride has been strongly recommended in gram doses, beginning on the day of the injection of antitoxin.

The treatment of serum sickness is largely symptomatic. Sponge with cold water for the fever, menthol solution for the itching, and heat to the swollen joints.

The general treatment of a patient with diphtheria should be the same as other acute infectious diseases. The room should have abundance of fresh air. The food should be light and nourishing. The urine should be examined occasionally. On account of the heart bearing the brunt of the attack, it should be guarded as much as possible.

The patient must be kept quiet in bed, not only during the attack, but for a considerable period of time after the illness, depending somewhat upon the severity of the attack. The time should also be longer in cases where antitoxin was given late.

Cardiac stimulants should be given as the heart shows signs of weakness. This can best be determined by listening to the heart sounds, particularly the second pulmonic. Jacobi has always been a great advocate of alcohol in some form. At the South Department, Boston, reliance is placed on camphor, caffeine, atropine and strychnia.

Cracked ice held in the mouth is grateful, and ice packs to the neck are useful, particularly where edema is present.

The use of local antiseptics is of secondary importance, and if strong may be actually harmful. In my judgment, anything stronger in the nose than normal salt-solution or liquid vaseline is not to be recommended.

To the pharynx in young children antiseptics are of doubtful value, as the physical resistance offered may be more harmful than the local treatment is useful. In older children and adults, my favorite application is a solution 1 part of peroxide of hydrogen to 3 to 4 of water. Some advise Loeffler's solution, while others prefer irrigation with a hot normal saline so-

lution. The ear should be watched for a beginning otitis media.

Paracentesis should be performed early. Borden lays stress on the number of mastoid involvements discovered at autopsy in patients dying with diphtheria whose drum membranes were apparently negative.

Pneumonia is a serious complication, and is especially frequent in laryngeal cases. Stimulants should be given as the case requires.

Gallop rhythm is a serious complication or sequela, and is best treated by absolute rest, rectal feeding, and appropriate stimulation.

Diphtheritic paralysis is a frequent sequela of diphtheria. It may attack any nerve, but particularly those of the palate and larynx. It is more serious when the pneumogastric is involved.

In laryngeal diphtheria, particularly in intubation and tracheotomy cases, it is advisable to use steam inhalations under an improvised tent. Ipecac may be used in slight stenosis pending the action of antitoxin. This should be relied upon but for a *brief* period of time, for we must remember that the laryngeal stenosis not only taxes the respiratory system, but gives an added burden to a heart already weakened by the diphtheritic toxin. As before mentioned, there are cases requiring large doses of antitoxin.

In intubation cases the question of feeding comes up. As a rule semi-solid food is best, and should, if possible, be given in the upright position. Rarely is it necessary to use a stomach tube, or the Castleberry position.

Whether intubation or tracheotomy is preferable in laryngeal stenosis of diphtheria has long been a mooted question. Since the introduction of the intubation tubes by O'Dwyer of New York, which marks one of the brightest spots in American medicine, physicians on this side of the waters have shown a decided preference for intubation. France has for a long time been an advocate of intubation, while Germany is using more and more the O'Dwyer tubes. England, in her conservatism, clings to tracheotomy. It is not to be understood that intubation is to entirely supplant tracheotomy for there are certain conditions where tracheotomy is preferable.

The advantages of intubation are:—

1. Relief of the stenosis without the shock of a cutting operation, and without an anesthetic.

2. Consent of the family for operative relief is more readily obtained. This is a

great advantage, as early relief of the stenosis is a great factor in reducing the mortality.

3. There is no danger of local infection, and less danger of pneumonia in intubation than in tracheotomy.

4. There is no resulting scar.

Tracheotomy instruments should always be at hand where intubation is performed, in case of stoppage of respiration from pushing the membrane in front of the tube. This is not a frequent occurrence. Rarely the patient persists in coughing up the tube, which if continued, requires tracheotomy. There are also cases where there is marked pharyngeal swelling, together with edema of the ary-epiglottic folds, where tracheotomy is indicated. Lastly, if the surgeon cannot remain within easy reach of the patient, in case of stoppage of the intubation tube, or its coughing up, it might be safer to perform tracheotomy. It does not seem necessary to give the technic of intubation or tracheotomy, for excellent descriptions of these operations are given in our text-books. However, the ingenious method of Mosher's intubation deserves mention, and in the hands of some should prove simpler than the indirect method. The same O'Dwyer tubes are used, only it is performed with a straight introducer, through a laryngeal speculum. If the direct method is used for diagnosis, it might be best to continue the operation and insert the tube with Mosher's introducer.

The writer wishes to emphasize the following points:—

1. The diagnosis of diphtheria depends primarily on finding the organism. Cultures should be taken of every sore throat in children, and likewise suspicious nasal discharges. But in the absence of a positive finding, if the symptoms point to diphtheria, antitoxin should be given. This is particularly important if the symptoms are severe.

2. Much larger doses of antitoxin should be given in diphtheria. Text-books have been misleading in this respect.

3. Laryngeal cases are serious partly from mechanical obstruction, requiring prompt relief of the stenosis, and large doses of antitoxin. Intubation in the main is preferable to tracheotomy. Laryngologists should perfect their technic in this operation until it becomes a fairly simple one.

4. Epidemics of diphtheria are kept up largely by "carriers." They should be sought out, isolated, and the abnormality treated. Diseased tonsils and adenoids may require removal.

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SUBCUTANEOUS MEDICATION IN ANEMIAS*

By Mary King Robbie, M.D., of San Antonio, Tex.

MEDICINES for general effect may be administered in one of the following ways:

- 1—Hypodermatically.
- 2—Endermatically.
- 3—As a liniment.
- 4—As an ointment.
- 5—In the form of a suppository, per vaginam or per rectum.
- 6—By respiratory tract.
- 7—By the mouth.

For the discovery of hypodermic medication, mankind is undoubtedly indebted in an overwhelming manner to Dr. Alexander Wood, of Edinburgh, who in 1855 published an account of his method of introducing liquor morphia into the system by subcutaneous injection. A book published in 1865, by Dr. Antoine Ruppener of Boston, on hypodermic injections in the treatment of diseases, leads me to believe that the author was the first writer on that subject in the United States.

The advantages of hypodermic medication are that certain results may be expected from the dose given. It enters directly into the circulation, and consequently does not undergo any change or decomposition such as might take place if given by the stomach. Physiologic results are obtained much quicker than by any other method, and the increasing popularity of this method of administering certain drugs, or medicines, is due to the widespread dissatisfaction with internal medicine, particularly in anemias and many types of malnutrition. The whole system is surcharged with poisons in these low grade diseased conditions, so much so that absorption of food is practically nil. The increasing be-

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lief is that almost all medicines when given internally are changed before final absorption and cannot, therefore, have the same effect they have when administered hypodermatically. We find that in lues our remedies are eminently more potent when so used, and progressive physicians are more and more looking for some method of greater persuasion and quicker results than the old plan of putting medicines of which we know little into the stomachs of which we know less. Literature records several cases where opiates introduced into the stomach to relieve severe localized pain have resulted in acute opium poisoning—not because the dose was too large, but because the gastrointestinal tract was not in condition to absorb the first doses given, allowing subsequent doses to become cumulative when absorption was resumed.

The brilliant results obtained in the treatment by this method of diseases like sleeping sickness, lues and malaria, encourages us to think that in the future investigators will find an ever-increasing number of specifics.

Dawes, in a very excellent article on "Hypodermic Medication in Modern Therapy," gives as a reason why physicians who advocate this method as being the correct one, and then persist in using the other, that in the minds of the laity and many physicians, the term hypodermic injection at once suggests the use of morphine for the relief of pain; for there is little doubt that nine out of ten physicians never use the hypodermic syringe for any other drug. Another reason is that the use of the syringe is more troublesome to the physician and the patient than the mere prescribing and swallowing of pill or tablet—the result, of course, being but a secondary matter. Then, too, the layman fears the pain from the needle and the inexperienced physician has unwarranted fears of abscess and other accidents. Many physicians are accustomed only to an antiquated leather-washed, necessarily unsterile and unsterilizable syringe, leaking from lack of use and with needles plugged with rust and dirt, and visions of malpractice suits floating before their eyes.

In regard to the subcutaneous and intramuscular injections of medicines, there is a diversity of opinion among equally rated scientific men, many claiming for the subcutaneous method greater expediency in the absorption of medicine, and *vice versa*. In a report by Meltzer and Auer "On the Rate Absorption from Intramuscular Tissue" (rabbits), they state that absorption from intramuscular tissue is incomparably faster than subcutaneous tissue, and that

the effect of intramuscular injection stands in value very near to that of direct injection into the circulation. The writer's observation with the two methods is, as regards the physiological action, exactly the same. The intramuscular being superior only in that there is less pain and irritation to the patient at the seat of the injection. My experience in subcutaneous and intramuscular medication has been principally and chiefly in the anemias of malaria and those resulting from gastro-intestinal disturbances. The preparation I have been using is iron citrate, grn. 5/6; sodium arsenate, grn. 1/6, and strychnine sulphate, grn. 1/120, put up in small sterile ampules and given once or twice daily as the case requires. The rapid rise in hemoglobin following this treatment is remarkable in most instances. I do not, however, approve of the indiscriminate use of this treatment, nor do I, by suggesting it to everyone who comes in, place myself in line with charlatanism. My cases, numbering 75, extend over a period of three years, and I have not seen it fail to produce at least 10 per cent. rise of hemoglobin in 30 days. The following cases are examples:

Miss B., age 30, a teacher by profession; was first seen November, 1910. Weight 120, extremely nervous and hysterical; no appetite and daily evacuation of bowels without any drug assistance. Thorough examination showed nothing abnormal except slight enlargement of one lobe of the thyroid gland. The patient had an idea that she had a prolapsed uterus. She had been treated by a woman osteopath for this condition for six months prior to my seeing her. Her pelvic appendages were absolutely normal, pulse 80, temperature normal, urinalysis negative. Examination of blood showed hemoglobin 45 per cent., red cell count 4,000,000; there was moderate variation in size and shape of cells. The patient was put on hypodermic twice daily of I. A. & S. At the end of one month she had gained 10 per cent. increase in hemoglobin and 5 pounds in weight; at the end of three months she had gained 15 pounds in weight, the hemoglobin was 85 per cent., and she was able to resume her professional duties February, 1911.

Miss C., age 19, had had a recent attack of pleurisy. When seen she was still having a little temperature each day with sharp, lancinating pain in the region of the right pleural limit. Had lost seventeen pounds in weight in the two months prior to this attack. Was expectorating a little blood, had no appetite and was extremely nervous. I at first thought it was incipient tuberculosis. Examination of the lungs revealed a pleuritic friction rub, with deficient expansion on affected side. Pulse 80, temperature 99 1-5, running to 100. There was slight cough and only in the morning. Blood pressure was normal. The sputum gave negative results. Urinalysis was also negative. Examination of the blood showed hemoglobin 65 per cent., red cell count 509,600. Repeated tests for findings in the sputum gave negative results. Patient's chest was strapped with adhesive plaster and she was put to

bed. Eggs and milk were added to the diet. Two injections per day of the iron, arsenic and strychnine were given. The temperature was normal at the end of one week. There was a gain of five pounds the first week, and the next three weeks the patient's weight remained the same. At the end of three months the patient had gained, all told, ten pounds and the hemoglobin was 85 per cent.

Miss K., age 36, weight 96 $\frac{1}{4}$ pounds; had never weighed 100 pounds in her life. She came to me suffering from anorexia, tired feeling and headache. Her temperature was running from 99-101 daily; had chilly feeling or chilly sensation about every ten days. Family history negative with regard to tuberculosis; lungs and heart normal and the spleen enlarged. Blood examination showed malarial plasmodium, hemoglobin 50 per cent., red cells 4,500,000. I placed her on one injection daily of the I. A. & S., alternating with three grains of sodium cacodylate. At the end of three months patient had gained sixteen pounds in weight, temperature was normal and hemoglobin 80 per cent. I must say, however, I gave her two grains of quinine every night. This I consider a remarkable case. The patient now weighs 120 pounds.

Miss H., age 19, weight 112, night long distance telephone operator; suffered from severe headache and lassitude; complained of vomiting her meals, after which she would feel perfectly well until next meal time. A careful examination for any signs of history of pregnancy was made. General examination revealed nothing but obstinate constipation. Examination of the blood showed hemoglobin 65 per cent. Castor oil was given every morning, with I. A. & S. daily; patient made a nice recovery in six weeks. This patient had previously taken tonics for appetite, etc., without much effect. Case diagnosed as constipation neurosis.

Mrs. B., age 26; chronic bronchial asthma. Digestion very poor, bowels constipated and very anemic. Was first seen February 26, 1912, and she had suffered continuously all the winter, one attack after another. Patient was placed on castor oil, two tablespoonfuls daily, a restricted diet, hypodermic injection of I. A. & S., alternating with sodium cacodylate, three grains. I am happy to state that although the patient was under my care only one month, she didn't have a single attack during the time and gained six pounds in weight and 10 per cent. in hemoglobin. She claimed she was better than she had been in years. Since returning to her home in Tennessee she has gained five pounds more. She still continues the hypodermic treatment under the care of her family physician.

I always select as a site for these injections the thigh. Just anterior to the great trochanter, it is said, there is an area of two inches square in which a hypodermic needle cannot be felt on account of comparative absence of nerve filaments. It is not necessary to mention the need of absolute cleanliness in preparing the skin for the injections and in rendering the needle thoroughly aseptic; also the need of care that all air be excluded from the syringe. I am indebted to Drs. B. F. Stout and P. I. Nixon of San Antonio, for blood count and hemoglobin tests in these cases.

SCARLET FEVER*

By Fletcher Langdon, M.D., of Gallipolis, O.

THE purpose of the present paper is to outline the present-day treatment of this important disease and the measures adopted in a modern hospital to check its spread.

Scarlet fever or scarlatina is an infectious disease characterized by a diffuse exanthem and an angina of variable intensity. It is probably of very ancient origin, concise accounts being on record as early as 1543 A. D.

The most important predisposing factor is age, the majority of fatal cases being under ten years old; infants at the breast rarely contract it and adults are less liable than children. It is held by some that the negro is more or less immune to the disease, but the statistics of the city of Baltimore show very little difference in the liability of the two races. This may be explained by the fact that, in this country, a pure negro is a rarity.

The determining cause is not definitely known, though Class ("Jour. A. M. A.," Feb. 24, 1900), describes an organism which he isolates from the throat of scarlet fever patients, and which injected into the guinea pig causes a disease resembling scarlet fever; the growth of the organism being inhibited by blood from a case of scarlet fever. This organism varies in its morphology and may appear as a diplococcus, a streptococcus, or a strepto-bacillus, and varies in size from a mere point under a 1-12 immersion lens to the size of a red blood corpuscle.

The disease may occur at any time, but it has been shown by Hirsch that the summer and the winter epidemics are more severe than those of the spring and fall. In order that a person may become infected with scarlet fever, it is necessary that he receive into his body emanations from the body of a scarlet fever patient. These may consist of the excretæ, discharges from the nose, throat or ears, or the scales of epidermis thrown off during the desquamation period.

The port of entry is usually the alimentary tract, though the surgical variety may be contracted through a wound by direct inoculation. The most common carrying agent of the disease in a community is the milk supply, and in many cases epidemics can be traced to the fact that someone who handles the cows or the milk has the disease or has been exposed to it. Instances of

* Read before the Gallia Co. Med. Soc. Lancet-Clinic March 20, 1913.

family susceptibility have been noted. One attack of the disease usually protects from future attacks.

The various forms which the disease may take are:

1. The mild or abortive form.
2. The malignant form, which may be fatal in a few hours.
3. The hemorrhagic form, characterized by petechial hemorrhages.
4. The angiose form, in which the glands of the neck suppurate and the tissues of the larynx may slough and the middle ear is generally involved.
5. The surgical form by direct wound infection.

The cardinal symptoms are:

1. History of exposure.
2. A period of incubation of from one to seven days, more often four to six days.
3. General malaise and languor.
4. Sore throat.
5. Rapid rise in temperature to 103° or 104°.
6. Tongue at first furred in the center and very red at point and edges, and later the typical "strawberry" tongue.

The rash usually appears within thirty-six hours and first appears on the back of the neck, spreading rapidly to cheeks, shoulders, chest and body and limbs, being most apparent on the thinner cutaneous surfaces. The region about the mouth is seldom invaded by the rash, giving the characteristic pallor so often noted.

During the time of appearance of the rash all symptoms increase and there is often found on the pharynx, tonsils or soft palate a membrane much like diphtheria and exceedingly difficult to differentiate.

The lymph nodes are nearly always enlarged, especially in the neck and may suppurate. The urine is scanty, highly colored, acid, usually contains albumen and may contain casts and red blood cells. The number or size of the red blood corpuscles is not much affected, though there is in nearly all cases a leucocytosis, especially of eosinophiles.

The two most frequent complications are nephritis and purulent otitis media. Other complications are:

1. Arthritis.
2. Empyema.
3. Brocho-pneumonia.
4. Adenitis.
5. Occasionally chorea, paralyzes and mental derangements.

It is unusual that a relapse occurs after the disease has run its course.

Diagnosis: The two most important dis-

eases to be differentiated are measles and diphtheria.

In measles the incubation period averages fourteen days, coryza appears instead of sore throat, the eruption coarser and usually appears in crescentic form and there are the Koplik spots in the mouth. There is a diminution in the number of leucocytes, especially the eosinophiles. The desquamation is fine and branny as against the larger flakes in scarlet fever.

From diphtheria the diagnosis is rarely difficult. The rash is not so common in this disease and when present is darker and fades sooner.

The Klebs-Loeffler bacillus is not so common in the early stages of scarlet fever, though later and in the anginose form it is common. Diphtheria and scarlet fever frequently coexist.

The other conditions from which scarlet fever must be differentiated are acute exfoliating dermatitis, erysipelas, septicemia, ivy poisoning, tonsilitis, non-eruptive fevers, smallpox and drug rashes. The history, the causal factors, the distribution and character of the eruption and the temperature curves will usually guide the diagnosis correctly.

The following measures of prophylaxis and therapy are those adopted in the service of Dr. A. J. Bell, of the staff of the new Cincinnati General Hospital (Contagious Group) where it was the writer's recent privilege to serve as interne.

The patient on being admitted is taken at once to the examining room where he is completely stripped, as much history obtained as possible and a thorough physical examination is made. Swab cultures are made from the throat and sent to the laboratory, where they are incubated for twenty-four hours and examined for the Klebs-Loeffler bacillus. Every patient on entering is given an immunizing dose of anti-diphtheritic serum; those under one year 500 units; under five years, 1,000 units; between five and ten years, 2,000 units; over ten years, 3,000 units or more if any history of exposure to diphtheria is presented. The patient is then wheeled through an open air corridor to the assigned ward, where his clothing is put in a bag and sent to the sterilizing department. Then he is given a cleansing bath, unless there are contraindications, and put into bed.

A specimen of blood is taken and a differential count made with a view to corroborating the diagnosis and to detect any cases of measles. During the febrile period the patient lives on an exclusive milk and

water diet to which is added egg-nog if stimulation is necessary and cream of tartar lemonade in cases of nephritis.

If any antipyretic is indicated, lukewarm cold or ice sponges or baths are used. Cold pack and alcohol rubs are used in cases of excessively high temperature. Ice caps are not used, especially on young children. Antipyretic drugs are seldom resorted to. If stimulation be needed, strychninè, digitaline, digitalis and whiskey are the usual drugs used. The throat is swabbed three times daily with Dobell's solution, or with glycerin and iodine, equal parts.

The urine is completely examined on admission and afterwards at least twice a week for albumen. When the fever subsides and the desquamation sets in, the body is kept smeared with vaseline or olive oil to prevent the flying about of the epithelial scales, and the diet is increased by the addition of soups, eggs, custards and other easily digested semi-solids. The patients are kept in bed for at least twenty-one days.

In cases complicated with nephritis, alkaline lemonades and diuretin (equal parts theobromine sodium and sodium salicylate are used to increase the amount of urine and hot packs in severe cases.

In a number of cases Fischer's solution (sodium chloride 14, sodium carbonate 15, and water 1000 c.c.) was given per rectum and intravenously with good results. Normal salt solution is also used, either per rectum, intravenously or subcutaneously.

In cases of purulent otitis media, the drum is punctured if necessary and the ear syringed with a solution of sodium bicarbonate three times a day and argyrol 5 per cent. is dropped into the ear following each washing.

Cases of angina which suppurate are opened and drained; ice caps to the neck are used if no pus is present. If convulsions occur, hot packs, chloral and bromides and morphia in small doses are used as a rule. In some cases spinal puncture and withdrawal of fluid succeeded in stopping the convulsion, and in some cases after withdrawing some of the spinal fluid a 1 per cent. solution of sterile sodium bromide was injected into the spinal canal. Tepid baths are also used. If a case of acute mastoiditis develops, it is given the usual operative treatment.

After twenty-one days such patients as have had a normal temperature for three consecutive days are encouraged to get out of bed and sit or play in the sun rooms at the end of the ward. After all desquamation has disappeared, daily cultures are made from the throat, and when three suc-

cessive cultures show negative to the Klebs-Loeffler bacillus the patient is marked for discharge. In discharging a patient he is given a daily soap bath followed by a bath of 1:1000 chloride of mercury, special attention being given to the hair and nails, and if in the meantime no Klebs-Loeffler bacilli are found in the cultures, he is discharged on the third day, being taken from the ward bathroom to the discharge bathroom where another bath is given and then to a dressing room, communicating only with the discharge bathroom and the open air corridor. In this dressing room his clothing bag is placed, without having entered any infected room. The patient dresses and leaves without passing through the ward or bath room.

The usual time of residence in the hospital is about six weeks. All soiled linen is taken as soon as soiled and thrown down a clothing chute which has an air-tight lid at the top, and at the bottom a large bag of coarse canvas. Every time the lid is closed a stream of water automatically wets the clothing in the bag at the bottom, preventing dry particles from flying about during the removal of the clothes. These canvas bags are removable and when filled are transferred bag and all to a large tank of 1:1000 bichloride and wheeled to the sterilizing department where they are put into a large steam sterilizer which occupies a position in the thickness of the division wall separating the sterilizing room from the laundry. At a certain time the laundry end of the sterilizer is opened and the clothes taken out and washed.

All persons entering the wards wear a combination gown and hood, leaving only the face and hands exposed. In addition the physicians and nurses wear rubber gloves whenever possible.

Visitors are not encouraged, but every patient may have one visitor per week on regular visiting day. These must remove their outer clothing, put on a gown resembling those worn by the nurses, except that the sleeves have no opening for the hand, and may remain but twenty minutes.

Each ward has its service elevator for bringing food from the main kitchen, and all articles that must be returned to the kitchen are thoroughly sterilized. There is a diet kitchen also in each ward.

All articles used by or on the patient are made of some substance which can be sterilized by heat, or as in the case of applicators and tongue depressors, those made of wood are used and destroyed as soon as infected.

Cases of scarlet fever complicated with measles are confined in one ward and those

complicated with diphtheria in another, the regular wards containing only cases of scarlet fever pure and simple.

In fatal cases the body is embalmed in a room provided in the hospital for that purpose, and the funeral services are held in a specially arranged room. The coffin containing the body is placed on one side of a large plate glass window and the relatives assembling on the other side. The relatives and the coffin leave this chapel by separate entrances. These methods of prophylaxis and treatment have apparently been fully justified as the number of fatal cases was less and the number of anginose forms fewer than would have been the case in the same number of cases treated in their homes. I know of no instance in which, after the discharge of a patient from the hospital, that another member of the same family was admitted in two months, though several times whole families of children were in the hospital together. There are no instances in which a nurse or physician contracted the disease while in the hospital.

THE RATIONAL TREATMENT OF THE HEMORRHAGIC AFFECTIONS OF CHILDREN *

By **Le Grand Kerr, M.D., of Brooklyn, N. Y.**

It was always a matter of deep concern to the writer that the literature upon the hemorrhagic diseases of children showed that methods of treatment advised by one were unequivocally condemned by others and no one measure escaped this fate. This was partly due to the fact that hemorrhagic disease has been more or less of a mystery. As it still remains so, it is necessary for the writer to speak of hemorrhagic affections rather than hemorrhagic disease.

In most instances we are still dealing with a syndrome in which the chief feature is spontaneous hemorrhage and with our present knowledge it is a symptom or symptoms with which we deal rather than a disease. For instance, it is the custom to divide purpura into several varieties but a closer study of these seems to prove that it is not different diseases with which we deal but different degrees of hemorrhage which are determined by the degree of toxicity rather than by its nature.

Of the agents commonly used practically all have been advocated with a warning. Calcium lactate the most vaunted of all is admittedly uncertain in its action. With

arsenic goes the warning that it will probably disturb the digestive tract by irritation; with adrenalin used internally, that its effect is more local than general; with gelatin solutions that if given by mouth their action is too slow and if used subcutaneously, even eight-hour boiling does not render it safe because while the possible tetanus bacillus is destroyed its toxins that do the harm are still active.

Thyroid extract, that socialist of the materia medica, whose administration was hoped to solve all of the unsettled problems of therapeutics, also had its day in the treatment of these hemorrhagic affections and was weighed in the balance and found wanting. There seemed at one time to be value in the suggestion that on account of its protein element, ascitic fluid would prove of service. It is easily and quickly obtained and fifteen to thirty C. c. injected subcutaneously and repeated in twelve to twenty-four hours has given doubtful results; doubtful, because in a few instances there has been apparent benefit while in the large proportion there has been little or none.

It is so self evident that the administration of iron, ergot, alum, tannin, sulphuric acid and several other similar agents is advised with no clear appreciation of the conditions to be met, that mere mention of the futility of this kind of treatment should be sufficient.

Of local agents there are several that control hemorrhage and no matter what the internal medication, local measures should always be instituted. Capillary oozing may thus be controlled by a gauze pad saturated with a ten per cent. solution of gelatin, a two per cent. solution of calcium chloride or a one to one-thousand solution of adrenalin. Prolonged but gentle pressure and the actual cautery also have their place as local agents.

Local control is unsatisfactory except for immediate results. Control in one situation does not affect the underlying cause and therefore one local hemorrhage follows another. Therapeutic efficiency demands something more than a control of local hemorrhage and the administration of some agent without a reasonable knowledge of what we are attempting to accomplish. What knowledge have we of these conditions?

With the exception of hemophilia, whose etiology remains uncertain, hemorrhagic affections of children are due largely to toxic substances which find their way into the circulation. While the particular of-

fending agents still remain undiscovered, we are certain from the clinical and other evidences that these agents act not only upon the nervous system with consequent marked vasomotor disturbances, but in a direct manner upon the endothelial lining of the smaller blood vessels and there produce degenerative changes. As regards the blood, coagulability is seriously interfered with and the clot lacks the firm contraction of normal blood. This is particularly true of purpura. In those clinical syndromes, occurring in the new-born in which hemorrhage is the striking feature, infection has been most consistently assigned as the cause and while ordinary sepsis is the most common etiological factor in spontaneous hemorrhages in infants shortly after birth there are instances with non-septic and unknown causes. But in all, septic and non-septic, one feature is always prominent, and that is impaired coagulability of the blood.

It is evident then that in the rational management of this class of affections, the primary objects are (1) to combat toxic elements which change the character of the blood; (2) to limit their effect upon the blood vessels (which is inevitable after a short period) and (3) to improve the coagulability of the blood. The first objects may be accomplished in time and are not urgent, but the last justifies no delay and in most instances is urgent.

There is no necessity for the writer to go into the details of treatment of the septic or other conditions which result in the presence of toxic substances in the blood; such treatment varies with individual cases. It must be clearly understood however that there are to the writer's mind two distinct propositions as regards the direct treatment of the circulatory changes taking place in hemorrhagic affections during childhood; one which concerns the blood vessel and the other the blood.

There are times when the hemorrhage has been prolonged enough or sufficient in amount to demand partial restoration of bulk if the vessels are to continue their work. This is the opportunity for a well-selected, timely and cautious administration of saline solution. Often this is used as a therapeutic measure whose value is overestimated and is applied more commonly as a routine measure than as a clearly indicated method based upon a physiological principle. The administration of saline solution, of stimulants and tonics to the circulation is not rational, unless we presuppose that the several blood forming organs are in reasonably good functioning

condition. The question must always be considered: will the vessels withstand immediate, prolonged or vigorous stimulation? Unless we can answer this affirmatively, we may accomplish actual harm by this treatment. Using saline solution as a substitute for blood, we must be clear as to whether we need it as a liquid or a hemostatic agent. Whatever the pathology may prove to be, there is some serious fault with certain morphological elements in the blood and coagulation is therefore difficult. Saline still further dilutes these elements which are already too scarce and by its vigorous stimulation of the circulation tends to increase hemorrhage. In other words, there is great danger in increasing bulk at the expense of quality.

What we strive for in this class of cases, is not blood as a fluid but blood as a hemostatic agent. We do not even strive to rejuvenate any organ or tissue; there is no time for that. Primarily, our therapeutic aggressiveness is to as quickly and as safely as possible supply to the blood the elements in which it is lacking or which have become inefficient and while thus controlling immediate consequences, give the blood making organs a chance to restore the normal balance.

The writer is assured that we possess two agents which will accomplish this: blood serum and whole blood. This is based upon a considerable clinical experience.

In the first cases in which this method was tried, animal serum was used. In most instances, a blank serum was administered but occasionally other sera were used as urgency left no choice. The results were uniformly satisfactory in that this method was sufficiently more prompt and certain in its results than all other measures that had been used. This difference in results was so consistently marked that it quickly superseded all other measures, except local treatment as an adjunct. The usual procedure was to administer ten to thirty C. c. and to repeat this every one, two or three days. These were the average but by no means the maximum doses. There was one troublesome feature; that was with the use of an animal serum, the patient frequently had to combat more or less severe serum reaction.

The use of human blood serum is more efficacious than animal sera and it should be used in preference. There is one point that needs emphasis; that the serum obtained from a near blood relation is of the greatest value with one exception, that exception being the use of whole blood from

a blood relation, hypodermically or by transfusion. Transfusion is the ideal method.

While there are difficulties of technique in transfusion, most of its failures can be laid to the fact that there is not always a clear understanding of the physiological principles involved or of its limitations in any given case. Transfusion or any other blood increasing measure does no good unless the blood making organs are capable of proper functioning.

When transfusion is not practical, whole blood may be used in a simple, immediate and most efficient manner. This is by withdrawal from a near blood relation and immediate injection into the child subcutaneously. It is a simple procedure to find the vein of the adult (the donor) and sufficient blood may be withdrawn quickly (usually five to ten C. c.) for immediate injection into the recipient (the child). If one has ever attempted to find the vein in a young child, he will at once appreciate the great difficulty, and therefore will understand why intravenous injection is practically impossible. The hunt for the vein takes so much time that the blood is rendered useless for injection. The procedures of withdrawal and injection must all be planned so that there is the least possible interval between them. The writer is more convinced than ever, that the procedure he recommended (not originally) in a paper read before the Society of Internal Medicine, Dec., 1912, to wit: the injection of whole blood (subcutaneously) in cases which are urgent and in which transfusion is impractical and the injection of human blood serum in the less urgent cases, is the most rational method of procedure. Both of these should be obtained from a near blood relation. Outside of the first immediate effect in which whole blood easily leads, there is apparently no therapeutic difference between whole blood and serum.

The writer would not leave you with the impression that all other details may be neglected, for the general management applicable to all forms of hemorrhagic disease in children must be carried out.

These are absolute rest of mind and body, protection against possible injury, the institution of adequate hygienic care, a harmless but sufficient diet and the treatment of the underlying condition, if it is discovered.

But in the treatment of the hemorrhagic affections of children first and prime consideration must be given to directly increasing blood coagulability by the admin-

istration of serum or of whole blood secured if possible from the nearest blood relation.

TREATMENT OF PYELITIS

In an acute attack of pyelitis, A. v. Lichtenburg introduces a catheter into the ureter up to the pelvis of the kidney and leaves it in place for 24 hours. Efficient drainage is thus established and the temperature will readily drop. Pus and bacteria will, however, continue to be present in the urine and the resulting chronic condition will require treatment. This is best accomplished by irrigation of the renal pelvis with collargol solution every 2 to 4 weeks until the urine is sterile. Recurrences can only be avoided by taking the mechanical conditions into consideration. If there is stagnation in the renal pelvis owing to ptosis of the kidney, it is evident that a fixation of this organ is necessary. The exact condition of the pelvis can always be determined by the Roentgen rays after the pelvis has been filled with collargol. In some cases of very long standing, with involvement of the renal tissues, a nephrotomy or even a nephrectomy will be required. In enterogenous colipyelitis, decapsulation of the organ will often prevent relapses since it will remove the paths by which the germs reach the kidneys.—Therap. Monatshefte, June, 1912.

PROPHYLAXIS AND TREATMENT OF HEMORRHAGE IN TYPHOID

W. F. Boggess, of Louisville, at the recent meeting of the Mississippi Valley Medical Association, stated that in typhoid fever it was his custom to give every 4 to 8 hours in suspension a mixture of 5 grn. of salol, 10 grn. of hexamethylenamine and 20 grn. each of bismuth subnitrate and bismuth subgallate. The author is of the opinion that the bismuth salts are indicated wherever there is intense catarrh with ulceration with or without constipation. Because of their specific and systemic antiseptic qualities, hexamethylenamine and salol can be given with good effect. A dose of castor oil is given every three or four hours and a normal saline enema every day whether or not diarrhea is present. In the 223 cases thus handled not one showed any hemorrhage.

In the treatment of hemorrhage the author points out the following indications: The bowel is to be put at rest by lessening the peristalsis; the coagulability of the blood is to be increased; the patient is to be sustained by proper measures. Of greatest importance, however, in the care of the typhoid patient, is prophylaxis.

Progress in Materia Medica and Therapeutics

TREATMENT OF VINCENT'S ANGINA

Achard and Desbouis report excellent results in the treatment of Vincent's angina with local applications of a mixture of 0.2 Gm. salvarsan in six to eight Cc. of glycerin. The preparation was applied three times daily and led to a prompt recovery. The method, which is simple and quite harmless, is to dip cotton in glycerin and then into the salvarsan powder. The cotton is then touched to the affected area. The authors point out that this procedure entails no risk and that if syphilitic infection is also present the drug does good service in combating the local spirochete and improving the syphilitic lesions whether primary, secondary or tertiary. A diagnosis between Vincent's angina and a local syphilitic lesion is often difficult, and in the former, mercurial treatment may do harm as in the case recently reported by Möller, in which gangrene set in. Salvarsan on the other hand will be of benefit in either case.—*Bul. de l'Acad. de Méd.*, Oct. 8, 1912.

TREATMENT OF RICKETS

A number of observers have come to the conclusion that rickets and osteomalacia are manifestations of one and the same disease, the difference consisting in the fact that the former is a disease of childhood and the latter one of adult life. Babs and Neus have recently recommended pituitrin in the treatment of osteomalacia, and it has therefore occurred to Klotz to try extract of pituitary gland in rickets also. He started with the consideration of the fact that while thyroid gland contains a considerable quantity of iodine, suprarenal gland a considerable quantity of sulphur, and so on, pituitary gland contains a considerable quantity of phosphorus. The retention of phosphorus and calcium is increased in rickety children by medication with phosphorus cod-liver oil. Phosphorus alone does not affect the storing up of calcium, but, on considering the composition of cod-liver oil, it becomes probable that a fair proportion of the phosphorus exists in the form of nuclein phosphoric acid and glycerin phosphoric of nuclein and lecithin respectively. In order to gain a better insight into the action, he treated some of his cases with

2.5 per cent. of pure lecithin. Improvement not only in the general condition but also in the power of walking was recorded on taking this medicament. This improvement was maintained only as long as the preparation was given, and the symptoms returned when it was stopped. In all, the experiments with pituitary extract and lecithin was limited to five cases. In four of the cases the children were able to stand after from seven to fourteen days after the treatment was started; they began to walk in seven, fourteen, twenty-one, and twenty-one days respectively, and all could walk nearly alone within forty-two days. An improvement in respect to general condition was also recorded. The excellent results obtained in these few cases inclines the author to the view that in rickets one is dealing with disturbances of phosphorus and not calcium metabolism. He is of opinion that further investigations are required before the pharmacology of the pituitary gland can be regarded as in a satisfactory state.—*Brit. Med. Jour.*, Feb. 8, 1913.

IDIOSYNCRASY TO RESORCIN

D. W. Montgomery, of San Francisco, reports a case of peculiar idiosyncrasy to resorcin in a patient who consulted him on account of a severe dermatitis of the scalp and forehead following the use of a dandruff cure. The resorcin paste of moderate strength, 3.25 per cent. was given and caused a violent reaction. When diluted one-half it still produced the symptom. The patient recognized from the symptoms that the same lotion must have been present in the barber's lotion employed. Later he had a similar attack from the use of an ointment given him by his sister. Inquiry as to any sensitiveness as to drugs elicited the fact that his parents were first cousins which is interesting on account of a full-blooded brother and sister being also sensitive to the same drug. Montgomery describes the action of resorcin and notices the previous instances of resorcin poisoning that have been reported. He says, "In summing up we may say that resorcin when applied in full strength on the skin acts as a highly irritant caustic. It is a powerful antiseptic and when applied as a strong lotion or ointment, causes an active desqua-

mation of the upper epithelial layers. It is therefore an efficient cutaneous antiseptic, both because it kills the bacteria, and because it produces an exfoliation of the bed in which they lie. Besides being a caustic, an irritant and antiseptic, it has a eu-epithelial action common to it and the tars and coal-tars, so that when properly diluted it lessens cutaneous irritation, and favors the return of epithelial cells to normal physiologic function. When applied in strong dosage over large surfaces, especially if these surfaces are denuded, it may be absorbed and cause dangerous symptoms of internal poisoning, or even coma or death."—*Jour. A. M. A.*, June 28, 1913.

PROPHYLAXIS AND TREATMENT OF EPIDEMIC MENINGITIS

A. Sophian, of Kansas City, Mo., points out that the most important measure in the prevention of epidemic meningitis is quarantine, which should include not only the sick but also the healthy members of the family in which the disease occurs. The period of quarantine should be at least 10 days, during which time active prophylactic treatment should be instituted.

Local medicinal treatment consists in the application of antiseptic sprays, douches, application by swabbing and inhalations to the nose and throat. Many antiseptics and sprays have been recommended, among them being hydrogen peroxide, iodine, guaiacol, chlorine water, pyocyanase, anti-meningitis serum, and many others. In the author's experience best results were obtained by preliminary gentle douching of the nose and throat with salt solution followed by spraying with $\frac{1}{2}$ to 1 per cent. hydrogen peroxide solution. Under this treatment most positive meningococcus carriers became negative in from three to six days.

Regarding internal treatment, hexamethylenamine, in doses of from 20 to 40 grains daily, is probably a very useful measure in that it is not only excreted through the nasal mucous membrane, but also into the cerebrospinal fluid. The drug should be taken in plenty of water so as to eliminate kidney irritation.

Serum injected subcutaneously, in average doses of 10 Cc., may be used temporarily as a highly efficient prophylactic. Protection afforded by this measure, however, is only temporary, lasting about two weeks. An objection is that complicating, annoying symptoms of serum sickness often follow the use of serum. The sensitization of the patient to an alien serum which might

possibly have to be used later for therapeutic purposes is undesirable, since it exposes him to the danger, remote as it may be, of anaphylaxis.

In those sensitized to serum, who later require serum therapeutically, a precautionary measure to prevent the severe symptoms of serum-anaphylaxis is to inject a small dose of serum, 1 to 2 Cc. subcutaneously. If reaction occurs, wait till it has subsided, then one may go safely ahead and inject a larger therapeutic dose without fear of reaction.—*Interstate Med. Jour.*, May, 1913.

FUCHSIN IN LEG ULCER

After giving a summary of his experimental work, E. S. May, of Oakland, Cal., and M. L. Heidingsfeld, of Cincinnati, report the results of the clinical treatment with Grüber's basis fuchsin the germicidal action of which he had described in his former paper. The obstinate cases of leg ulcer have had no reliable and satisfactory treatment and in nearly all his cases almost every suggested remedy had been employed. On March 1, 1912, twenty selected cases were treated, with ointment made as follows:

Fuchsin	5 parts
Eucalyptus Oil	10 parts
Anhydrous Wool Fat.....	100 parts

The results were remarkably good. The ulcerations cleaned rapidly and pus and all evidences of secondary inflammation disappeared promptly with relief of pain. In a few cases, however, use of the remedy over a period of several weeks caused mild inflammatory reaction and dermatitis, and the formula was changed to the following:

Fuchsin	1 part
Petrolatum	5 parts
Anhydrous Wool Fat.....	100 parts

This has been well borne in all cases. A second series of cases was taken up in the fall of 1912 and the effects being not quite so favorable, it was found that commercial fuchsin was being used and not so well tolerated. When the change was made back to Grüber's basic fuchsin the same improvement and tolerance were again manifested. He insists on the importance of the character of the fuchsin employed and he is strongly impressed with the belief that in this class of cases basic fuchsin possesses the most satisfactory therapeutic efficiency. He heartily recommends its use in chronic leg ulcers. Other measures such as anti-syphilitic treatment, corrective appliances, etc., should be employed when specially indicated. If the drug is efficient in this hopeless class of cases it also gives promise of

a wide field of usefulness in many directions.

In a footnote the editor of the "Journal of the American Medical Association" points out that in a previous paper May reported that while he had found "acid" fuchsin devoid of germicidal action "basic" fuchsin had proved strongly germicidal. In regard to the chemical identity of the "basic" fuchsin Dr. May stated that "it is the acetate which is furnished us as basic fuchsin and the hydrochloride and sulphate as acid, or ordinary fuchsin." As he had no knowledge of the identity of the dye used (Grüebler's Fuchsin für Bacillen), and as this identity appeared of first importance, since others might wish to repeat his experiments, The Journal decided to investigate the matter. Inquiry addressed through the American agent, Eimer and Amend, to G. Grüebler & Co., brought the information that "Basic Fuchsin is a mixture of rosaniline and pararosaniline hydrochloride with the formula of $C_{19}H_{26}N_3ClO_4$." Two specimens of Grüebler's Fuchsin für Bacillen, one sent by Dr. May and the other purchased from Eimer and Amend, as well as a specimen of "Fuchsine Merck Medicinal," which appears to be identical with the Grüebler product, have been examined in the Association Laboratory. All three dyes are in the form of hydrochloride. Those who wish to repeat the work here reported should bear in mind that the work was done with the fuchsin hydrochloride instead of acetate. The hydrochloride may be obtained in the form of "Grüebler's Fuchsin f. Bac." and "Fuchsine Merck Medicinal."—*Jour. A. M. A.*, May 31, 1913.

GOLD AND TUBERCULIN IN THE TREATMENT OF LUPUS

For the treatment of lupus Bettmann begins with intravenous injections of gold and potassium cyanide in doses of 0.01 Gm. dissolved in at least 50 Cc. of water and rapidly increases the dose to 0.03 Gm. every second day. The infusions were painless and local complications except superficial hemorrhage which never suppurated were not observed. General symptoms, such as chill, fever, vomiting or diarrhoea did not occur and the urine always remained free from albumin. Up to the present sixteen patients with lupus have been treated with a series of 14 or 15 gold infusions, the total amount of gold injected being about 0.4 Gm. in 32 to 43 days. As a rule, tuberculin was injected on the days between the gold infusions. The initial dose was always very small (0.00001 Gm.) and was increased

very slowly and cautiously. With these minimal doses, the constitutional reaction was generally absent and the local reaction very slight when no gold was injected but much more marked with the combined treatment. The author has obtained very good results with the combined therapy though it is as yet too early to speak of definite cures. It seems that tuberculin is much more potent if used with gold, probably because the latter causes a capillary hyperemia, which allows the toxin to reach the infected foci more readily. The amount of tuberculin injected should always be minimal, so as to avoid severe reaction, particularly where there are also lesions in the internal organs.—*Muench. med. Woch.*, April 15, 1913.

TANNIN PREPARATIONS IN ENTERITIS IN INFANTS

P. Sittler, of Colmar, has found that the tannin preparation by mouth, or if necessary by rectum are valuable adjuvants in the treatment of enteritis of nurslings or of older children. Particularly good results were obtained with tannalbin, especially when large doses were employed. Infants under one year should receive from 45 to 75 grains daily, older infants from one to two drams and children about two and one-half drams. The author states that these large doses never do harm and are much more potent than the customary small doses. For children who object to swallowing the powder he prescribes the drug in the following form:

Tannalbin	.....	.....
Cacao	.....	5xiiij
Pulv. Aromat.	.....	grn. xxx
Saccharini	.....	grn. xij
Vanillini	.....	grn. jss

THERAPEUTICS OF HEXAMETHYLENAMINE

H. A. Hare calls attention to the fact that one of the advances made in therapeutics during the last two decades has been the introduction into medicine of one or more substances which, comparatively harmless to the body of the patient, nevertheless inhibit the growth of pathogenic organisms which may have invaded that body. The most important of these, aside from the specific remedy, salvarsan, is without doubt hexamethylenamine. Considerable divergence of opinion has existed as to the manner in which it acts as an antiseptic in the genito-urinary tract. It is commonly believed that the drug is decomposed in the kidneys, or in the urine as soon as it is excreted, and that formaldehyde is set free, which acts as formaldehyde or combines

with any sodium which may be present forming a sodium compound.

Hare also calls attention to the most recent investigation on this subject by Jordan. The doses that he employed were 10 grains three times a day, either alone or in conjunction with acid sodium phosphate or potassium citrate. He found when pathogenic organisms were present that the disinfectant or germicidal influence of hexamethylenamine amounted to little or nothing if the urine was alkaline or faintly acid, but became very powerful if the urine was rendered distinctly acid by simultaneous administration of acid sodium phosphate. Conversely, that the simultaneous use of potassium citrate, whereby the urine was made alkaline, diminished the antiseptic power of hexamethylenamine. It would seem probable, however, that this rule does not apply to those cases in which the colon bacillus is the cause of the genito-urinary infection. Indeed, it is possible that the remedy does best in this infection when the urine is alkaline, possibly because an alkaline urine is less favorable to the growth of the colon bacillus than is the urine with an acid reaction. Hare points out that it has been known to practical therapists for many years that hexamethylenamine does best in cases of vesical irritation and inflammation, not dependent upon distinct infection, when the urine is alkaline and loaded with phosphates, since it tends to make the urine acid, and conversely, it may increase irritability if the urine is excessively acid. The conclusion to be drawn, he states, would seem to be that it is important in the treatment of these cases, first, to determine whether the trouble is dependent upon the presence of an infecting organism, then to determine the reaction of the urine, and if it be alkaline to administer acid sodium phosphate, or perchance potassium bitartrate, to increase the urinary acidity if ordinary pathogenic germs are present.

Vanderhoof recommends hexamethylenamine as a remedy of great value in cases of acute colds, and in patients suffering from acute and chronic bronchitis. The drug should be given in large doses, accompanied by the copious drinking of water. In the ordinary cold, treatment with hexamethylenamine shortens the stage of coryza and greatly modifies or entirely prevents the succeeding bronchitis. He also believes that it acts as a prophylactic against ensuing infection of the accessory nasal sinuses. Vanderhoof says that it is our best remedy in acute bronchitis. Certain cases of chronic bronchitis respond to treatment by hexamethylenamine with a gratifying alacrity,

while others do not. In the latter instance it is presumed that structural changes have occurred in the walls of the bronchi, associated with thickening and calcifications of the cartilages, fibrous membrane and muscular coats so as to preclude the hope of successful treatment by any remedy.—*Progressive Medicine*, Dec., 1912.

TREATMENT OF WHOOPING COUGH

J. Herz in the "*Semaine médicale*" for Oct. 9, 1912, recommends the internal use of metallic copper and of inhalations of cypress oil and of formaldehyde in the treatment of whooping cough. In children over two years of age, the dose of copper given is 0.0005 gramme (1/128 grain), administered morning and evening in water or milk. In those below the age mentioned considerably smaller doses are used. The cypress oil is used in a ten per cent. alcoholic solution. A piece of flannel is pinned to the little patient's clothing and allowed to remain both day and night; a few drops of the cypress oil solution are placed on it about every three hours—or when the odor disappears—and the child is thus kept constantly in an atmosphere of the oil. The formaldehyde is administered once daily by fumigation, i. e., much in the same manner as with the ordinary room disinfection at the close of infective illnesses. Herz has obtained with the foregoing measures results much superior to those of ordinary treatment. They are especially efficacious if begun early in the disease, though even later considerable relief is afforded.—*N. Y. Med. Jour.*, March 29, 1913.

THE ACTION OF LUMINAL IN INSOMNIA AND HYSTERIA

E. Hartung generally gives luminal together with 7½ grn. milk sugar shortly after the evening meal. In this way, gastric disturbances are avoided. The hypnotic effect was usually noticed after 2½ to 3 hours and sleep lasted until 5 to 6 in the morning. In some cases, a sedative effect was noticed during the entire following day and excited patients appeared much quieter. The author concludes that Luminal may be employed:

1. In cases of simple or more marked insomnia. For the former, grn. 1½ is sufficient; for the latter grn. 3 to 5. The impression is that luminal is 2½ to 3 times as potent here as veronal.

2. In the excited stages of mania and schizophrenia where larger doses grn. 7½ to 11 are necessary at first though later the dose may be reduced to grn. 5. In one case even these large doses were ineffectual

but here even scopolamine had very little quieting effect.

3. Good results were also seen in hysteria and epilepsy. The chief advantage of luminal is that it has a pure veronal effect but is much more potent. It is therefore more useful in institutes than in private practice where the somnolency of the following day may be undesirable. If very small doses are, however, employed, there is generally no somnolency and the effect is essentially that of veronal.—*Deutsch. med. Woch.*, 1913, No. 7.

STRYCHNINE IN BROKEN CARDIAC COMPENSATION AND IN COLLAPSE AFTER ACUTE AFFECTIONS

In a paper read before the New England Pediatric Society, L. H. Newburgh, of Boston, stated that there is no pharmacological basis for the assumption that strychnine, in medicinal doses, has either a pressor effect or that it increases the work of the heart. Mayer and Denys showed that nothing less than the convulsive dose raised the blood pressure; and Igersheimer showed that the heart was not affected until enormous doses were reached and that this effect was a slowing of the circulation. The strychnine used was tested on frogs and was found to be highly active. The drug was also given in eight cases of broken cardiac compensation in very large doses but with an entirely negative result. It was also given in large single and repeated doses in eight cases of pneumonia in all stages and in eight other persons all of whom showed hypotension. No effect on pulse or on systolic or diastolic blood pressure was observed.

Commenting on the paper, W. P. Lucas stated that he had been conducting some experiments with strychnine in cardiac conditions in children and found that the blood pressure findings were very much harder to get than in adults and that they cannot be accurately recorded. The findings so far as he could determine had been negative. While the patients were on strychnine, the symptoms appeared to be benefited but there was no progress.

G. C. Shattuck stated that in a large number of cases of pneumonia, typhoid and heart disease his experience with stimulants was far from satisfactory. In a few cases, however, he observed well marked changes in the heart sounds and pulse after the use of strychnine. He also noted similar changes in a patient with phthisis who was taking 1/30 grain three times a day for several days. The heart sounds in this patient were considerably louder than nor-

mal, the second aortic being especially accentuated, and the pulse bounding. Dr. Shattuck said he hesitated to believe that there were no conditions in which strychnine is of value as a stimulant.

J. M. Knox stated that some years ago Cook had carried on a series of observations to determine the effect of the blood pressure, the systolic pressure only was taken, of strychnia, digitalin and salt solution. His results showed that the rise in pressure following digitalin was more prompt, but of less duration, the curve having a sharper summit. Following strychnia the rise was a little less prompt but the effect was longer. The salt solution was a little less certain, but usually the rise in blood pressure was not so great, but the duration extended over a number of hours making a very obtuse summit to the curve. These observations were made shortly after the beginning of the use of the instrument for measuring the systolic blood pressure and the results may have been untrustworthy.

TREATMENT OF VOMITING IN UREMIA

R. Oppenheim, in "Progrès médical," writes that although vomiting, tending toward elimination, should not be interfered with when of mild degree, in some cases this symptom must be combated because it is so persistent as seriously to hinder the feeding of the patient. Under these circumstances restriction to two litres of water daily, taken cold and in small mouthfuls, with complete avoidance of food, will sometimes bring about cessation of the vomiting in two or three days. If not, the stomach should be washed out once daily with an alkaline solution, such as artificial Vichy, and bowel irrigation with one and a half to two litres of boiled water be likewise practised once or twice each day. Where there has been no rise in blood pressure, the next measure to be resorted to is hypodermoclysis, from six to ten ounces, of a thirty per cent. solution of glucose being introduced twice daily. To these procedures suitable eliminatory treatment should be added—stimulation of the skin by dry or alcohol rubbings, and of the kidneys by diuretic drinks; local or general blood letting; renal organotherapy, especially in the form of subcutaneous injections of serum from the renal vein, and finally, removal in so far as is possible of all toxic influences, dietetic, or medicinal.

If these measures prove insufficient to arrest vomiting, symptomatic medication will have to be resorted to. After every enema

given, nutrient or otherwise, one tablespoonful of each of the two following mixtures should be administered:

Potassii Bicarbonatis 3ss
Syrupi f. 5i
Aquæ f. 5iii
M.

and after the preceding:

Acidi Tartarici 3ss
Syrupi Acidi Citrici f. 5i
Aquæ f. 5iii
M.

Where these fail, sodium citrate should be tried:

Sodii Citratis grn. lxxv
Aquæ Destillatæ f. 5x

M. Sig.: One tablespoonful at short intervals.

Or, one of the following combinations may be availed of:

Mentholis grn. xv
Alcoholis f. 5vi
Syrupi f. 5i
Aquæ Destillatæ ad. f. 5v

M. Sig.: One teaspoonful every hour.

Tincturæ Iodi 5iiss
Chloroformi ℥lv

M. Sig.: Five drops two or three times a day.

Ætheris ℥xvi
Alcoholis ℥xl
Aquæ Aurantii Florum f. 5iiss
Syrupi f. 5i
Aquæ f. 5iii

M. Sig.: One tablespoonful every two hours.

The use of cocaine, morphine, belladonna, or antipyrine should be avoided in these cases.

External measures which may prove of some use are: 1. Application of hot compresses to the epigastrium; 2, an ice bag; 3, a spray of ether or ethyl chloride; and 4, counterirritants.—N. Y. Med. Jour., June 21, 1913.

ETIOLOGY AND TREATMENT OF KERATOCONUS

K. Augstein, of Bromberg, reports a case of struma with conical cornea successfully treated with thyraden. The dose employed was three 5-grain tablets daily increased gradually to 12 tablets daily for twenty-four days. As early as the seventh day a marked decrease in the size of the goiter was noted. Two thick, gray opacities appeared in the scar of the cauterized conus on the right side. On the left side, the conus had decreased about 1 mm. in height and the opacities in the epithelium and the upper lamellæ were receding. Ten days later the struma had disappeared. The circumference of the neck at this level was now 37 and 38 cm. as compared with 39 and 43 cm. Only slight traces of the former

opacities remained and there was further flattening of the cornea.

Owing to the rapidity of the pulse, the thyraden tablets were discontinued 24 days after the treatment started. After two weeks slight opacities again appeared in the cornea. The patient was then given 8 tablets daily with 0.0024 Gm. arsenious acid in pill form. The pulse remained normal. The right cornea returned to its normal shape while the left still shows a slight conical elevation if viewed from the side. The circumference of the neck remained normal.—Klin. Monatsbl. J. Augenheilkunde, April, 1913.

TOXICITY OF SQUILLS

Ewins believes that the toxicity of squills is in all probability due to the presence of at least two active principles. 1. A glucosidal substance very easily soluble in water and resembling in many respects the water soluble strophanthin. This substance has been isolated in an approximately pure form but so far has not been crystallized. The maximum lethal dose of the product is 0.03 mg. for a frog of about 25 Gm. in weight, death being produced by the stopping of the heart in systole. 2. A resinous product very slightly soluble in water, readily soluble in alcohol and not precipitated by ether from its alcoholic solution. The minimum lethal dose of this product is 0.06 to 0.07 mg. per frog. From the alcoholic extract of the squill bulb a small quantity of caffeine was isolated. The base is present only in a very small quantity (0.01 per cent. of the dried bulb).—Progressive Medicine, Dec., 1912.

ORGANOTHERAPEUTIC PREPARATIONS IN GYNECOLOGICAL PRACTICE

K. Hoffman, of Altona, writes that organotherapy has been employed for a number of years in functional disturbances of the ovaries and the results obtained have, in general, been satisfactory. Inasmuch as it is at present impossible to determine the active ingredients either by chemical or physiological means, the author believes it is necessary to employ a preparation which is known to be of uniform composition.

Prochownick warmly recommended some time ago ovaraden, an ovarian preparation containing both the soluble and insoluble constituents of the ovaries. He drew attention at the same time that the combination with the ferruginous preparation triferrin presents many advantages over the simple organotherapy. This effect is particularly noticeable in climacteric disturb-

ances, especially on the part of the vasomotor apparatus and upon induced menopause. Good results were also obtained with ovaraden-triferrin in chlorotic and anemic patients and in women who have been operated on for bilateral tumors of the ovaries and adnexa.—Reichs-Med. Anzeiger, 1912, No. 21.

TREATMENT OF CANCER OF THE STOMACH

H. Finsterer lays down the following rules for the successful treatment of cancer of the stomach: A resection of the tumor should be attempted whenever technically possible. In some cases the use of general anesthesia may be attended with dangers; here local anesthesia should be employed. After the resection of large and extensive growths, the Roentgen rays should be employed and it is best to allow the rays to act upon the exposed growth. In this way metastases in the glands and the liver will be reduced and the life of the patient considerably prolonged. In inoperable tumors the author performs a simple exploratory laparotomy and gastro-enterostomy and then uses the rays. A special operation is described which can also be used for fixed growths of the posterior wall of the stomach. Injury to the serous coat of the stomach must be carefully avoided. Later, chemotherapy may be employed to assist the action of the rays.—Muench. med. Woch., April 22, 1913.

TREATMENT OF DIPHTHERIA

Koehler praises the action of hydrogen peroxide applied locally in diphtheria but finds that most of the preparations on the market are either too weak or give up their oxygen too rapidly. He obtained much better results with perhydrol, which he states is a preparation of exceptional purity and contains 30 per cent. by weight of pure peroxide and liberates 100 times its volume of oxygen. The author uses the perhydrol in combination with glycerin since the latter delays the evolution of oxygen and by itself has a very favorable action upon the membranes in that it attracts water and thus favors a drying out of the pathological tissues. The following is the formula he generally employs for local application: Perhydrol, 3 Cc.; glycerin, 30 Cc. The results are no less satisfactory in follicular, lacunar and catarrhal angina. Where a gargle is desired in addition, he recommends the following formula: Perhydrol, 6 Cc.; aquae dest., 300 Cc. Sig.: One to two tablespoonfuls to one cup of boiled water. To be mixed shortly before use.—Klin. therap. Woch., 1913, No. 3.

ROENTGEN RAYS IN FIBROIDS

E. Falk concludes an interesting article as follows: 1. Fibroids which have reached a considerable size but cause no bleeding or other disturbance do not require any treatment, provided the patient is constantly under supervision. 2. Rapidly growing fibroids are not suitable for treatment with the Roentgen rays, but should be operated even if a heart lesion is present. 3. Submucous fibroids are not suitable for X-ray treatment. 4. In young women, fibroids causing severe bleeding should preferably be operated, since treatment with the Roentgen rays is apt to affect the ovaries, while after an operation the ovaries will be retained. 5. If adnexal disease is also present, the Roentgen rays may cause an exacerbation of the inflammation. 6. Cases most suitable for treatment other than operative are interstitial fibroids in women over 50 years of age provided there is no urgent indication for their removal. That the Roentgen rays have a very decided elective effect upon the fibro-muscular tissues of these tumors is claimed by E. Graefenberg.—Berl. klin. Woch., Apr. 29, 1912.

TREATMENT OF DIABETES WITH RECTAL INJECTIONS OF SUGAR

H. Luthje finds that most individuals will very easily absorb one to two liters per day of a 5.4 per cent. glucose solution if given per rectum very slowly by the drop method. This corresponds to 50 to 100 Gm. of sugar which can be introduced into the system in this way. It was also found that in diabetes, sugar given in this way was much better utilized than if taken by mouth. At first it was believed that the sugar was simply fermented in the lower bowel and thus was not absorbed. In cases however, where the enema was not retained but was again voided after several hours, it was found that the percentage of the solution had not changed. Then also the beneficial effect which these injections exert upon acidosis makes an actual absorption highly probable. The direct proof could easily be obtained when the blood itself was analyzed: in all cases tested, the percentage of sugar in the blood serum was unmistakably increased. With experiments on dogs it could be demonstrated that sugar injected into the portal vein will give rise to a more pronounced glycosuria than sugar injected into the femoral vein. Sugar given per rectum is also absorbed by the blood without passing through the liver.—Therap. d. Gegenwart, May, 1913.

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JULY, 1913

EDITOR'S NOTES

Treatment of Epilepsy

A diagnosis of epilepsy can only rarely be made from the single attack. Generally, observation over a longer period will be necessary, during which a number of attacks with normal interval are likely to occur. The epileptic attack itself is merely a symptom which may accompany a large number of morbid conditions.

The pathogenesis of true epilepsy is as yet unknown. It is usually assumed that there are so-called "epileptic changes" in the motor cortex of the cerebrum, but it is not known if these changes are histological, physical or chemical. They are characterized by an increased irritability so that a "discharge" results from certain irritations which under normal conditions might pass unnoticed. This epileptic change is not a temporary symptom but a chronic condition, for it is apt to persist even where a definite etiological factor can be discovered and removed.

It seems probable that the epileptic changes and hence epilepsy itself are directly caused by a permanent increase in intracranial pressure, giving rise to either general or local increase in tension. Choked disk is characteristic only of the more marked degrees of increased intracranial tension and we have as yet no method of detecting the slighter grades. It is well known that hydrocephalus, cerebral swelling and brain tumors will raise the pres-

sure within the skull and it is very likely that the same thing occurs with fetal encephalitis, meningeal exudates, cysts, abscesses, sclerosis and other local pathological lesions. In other cases, the skull may become ossified too early or there may be traumatic, syphilitic or arteriosclerotic lesions. In still another class of cases, the cause is of toxic nature such as in the chronic intoxication with alcohol, lead, absinth, nicotine, cocaine and in uremia. The autointoxication with metabolic products can also give rise to epilepsy and in some cases, the toxins of scarlet fever, diphtheria, measles or influenza are responsible.

The simplest classification of epilepsy is into the congenital and the acquired form. In the former, intrauterine cerebral conditions are generally responsible, while the etiological factors of the latter are generally trauma, alcoholism, syphilis and arteriosclerosis. The term idiopathic is applied to those forms where there is apparently no organic substratum, and the term reflex, where the attacks seem to be caused by some peripheral irritation, such as scars, foreign bodies, delayed dentition, worms, etc. The majority of these cases are not, however, true epilepsy but hysteria.

The diagnosis is usually easy, but inasmuch as the physician only rarely sees the attack and must depend for his diagnosis upon the description of the patients or their relatives, the difficulties of a correct diagnosis are often very great. Hysterical attacks, in particular, are often mistaken for epileptic seizures. The presence of a distinct aura is of importance. This may be motor (tremor, twitchings, paresis), psychic (feeling of fear or unrest or difficulty in cerebration), psychomotor (aphasia), vasomotor (sudden perspiration or feeling of coldness in the limbs), sensory (paresis, tinnitus, disturbances of sight and sensation) or metabolic (polyuria). The attacks frequently change in character and when often repeated, may lead to the very dangerous status epilepticus.

It is of importance in every case to determine the conditions under which the first attack appeared: the exact time, relation to food, the condition of the bowels and menstruation. There may be a history of excessive use of alcohol or tobacco, or some other etiological factor of value in the treatment of the case may be discovered. Even meteorological conditions may play an important rôle.

The treatment of epileptics invariably calls for rest in bed if there are more than two attacks a week. A hard pillow should

be used in place of the customary soft one as with the latter there is always danger of suffocation if the patient turns around during an attack. In the milder cases, rest is advisable only part of the day and walks of 1 to 1½ hours duration may be permitted twice a day since the pulse is generally soft and toning up of the heart action is very desirable. Work of any kind should, however, be strictly forbidden.

It goes without saying that all food apt to stimulate the nervous system is injurious to these patients. This includes alcohol, tea, coffee, tobacco and spices and even to some extent meat. Small frequent meals are better than few large ones since in this way the stomach will not be overdistended. The bowels should be kept open daily and the skin and mouth should be treated according to modern, hygienic principles. Scars, abnormal conditions in the nose or throat should be corrected if present and where there is evidence of increased intracranial pressure, trephining may be considered.

According to Arlenmayer ("Berl. klin. Woch.", May 5, 1913) the combination of various bromides together with carbonic acid and salts of a diuretic and laxative nature gives the best results. The treatment is begun with small doses (15 to 22 grn. two or three times a day) which are gradually increased and then again diminished. If bromism appears, the treatment should not be interrupted suddenly but the dose should be diminished or some other salt substituted. The author believes that most of the organic bromine compounds are too feeble to be seriously considered.

While the bromides are the cardinal drugs for this disease, various other drugs will often be of great service to assist their action. Foremost among these are chloralhydrate in doses of 7½ grn. twice daily. Opium is excellent in the alcoholic forms of epilepsy. Among the recent remedies, luminal seems to be most promising. It is best to give 2½ to 5 grn. in the evening for four successive days. With these three drugs, it is possible to avoid overlarge doses of the bromides and to get excellent results with small ones. In mild cases, preparations of valerian also may do good service.

The Flechsig cure calls for the administration first of opium and then of bromide and should be attempted only with patients in bed and under observation. The opium is given in pill form, ¾ grn. three times daily at first, the dose being increased daily by 1/6 grn. until the patient

receives 5 grn. three times daily. The opium is then suddenly stopped and 30 grn. potassium bromide given in its place three times a day. The dose of the latter is soon increased to 45 grn. three times a day, which is kept up for two months. The heart must be carefully watched particularly when the bromide is substituted for the opium. Permanent results have not followed this cure.

v. Bechterew recommends the following:

Inf. Adonis Vernalis (4:180).....	180.0 Cc.
Codeinæ	0.15 Gm.
Potassii Bromidi	7.5—12.0 Gm.

M. Sig.: Two tablespoonfuls three to four times a day.

Within recent years, a diet poor in sodium chloride is generally recommended in epilepsy. It is assumed that there is a distinct antagonism between bromides and chlorides and that the former act better if the latter are reduced. It is possible to reduce the amount of salt ingested daily to 8.5 gm. and the attacks become less frequent in consequence. All preserved or smoked meats or fish, gravies, cheese and salted butter should be forbidden. The exact rôle played by salt is not yet perfectly understood but there can be no doubt that better results are obtained where the salt is reduced to as small amount as possible.

The iodides are sometimes very beneficial in the epilepsy of children and young individuals, depending upon an encephalitis or meningitis, particularly as a large percentage of these cases are luetic in origin. The absorption of old exudates is naturally very slow, hence the iodides must be given for many months in large doses and with intervals, during which the bromides may be substituted. Potassium and sodium iodide should be given together in alkaline solution and acids should be strictly avoided during the cure. Many other drugs have been recommended in epilepsy but the only other one that deserves mention is atropine.

Crotalin, a poisonous principle obtained from the salivary glands of the rattle snake is the latest specific for epilepsy. It is said to contain two active ingredients: a pepsone-like body, which paralyzes the nerves and a globulin, which delays the coagulation of the blood. Patients with hemophilia are never afflicted with epilepsy hence it was believed that the disease could be favorably affected if the clotting of the blood were delayed or the patients artificially rendered hemophilic. The preparation is used subcutaneously and it is necessary to keep the patients under strict observation in a hospital.

The much dreaded status epilepticus is best treated with enemata containing chloral hydrate and with infusions or enemata of salt.

In rare cases, where the aura is prolonged, it may be possible to abort the convulsions by cutaneous irritation or a cantharides plaster, applied to the extremity involved. In Jacksonian epilepsy, tight constriction may be applied around the extremity. With more general aura, inhalations of amyl nitrite or the swallowing of salt is said to be effectual.

Modern Treatment of Ozena

If the severity of a disease is to be determined by the number of remedies recommended for it, ozena must be regarded as a very intractable illness. Indeed, there are still many physicians who consider this form of atrophic rhinitis well nigh incurable. This applies especially to those who believe that ozena is always a congenital affection, dependent upon a malformation of the nasal fossae. The majority of physicians of the present day, however, are of the opinion that the disease has not of uniform etiology and that while it may be congenital it is just as frequently acquired, usually during childhood, to grow worse as the patient gets older. The lesions represent trophic processes resulting from disturbances in the nutrition of the mucous membrane. It thus will often be possible to check the process and even bring about a partial or complete cure.

Examination usually shows a much atrophied middle and lower turbinated bone, covered with a granular and brittle mucous membrane. The nasal fossae are dilated ad maximum so that the posterior nasopharyngeal wall can be readily seen. The mucous membrane is still in a condition of irritation so that a thick, purulent secretion is voided, which readily dries to crusts. These are generally voided every second to fourth day in the form of large, fetid casts. Frequently, an atrophic catarrh of the same nature involves the deeper air passages, even as far down as the trachea. Infection of the accessory sinuses is not rare and will materially increase the amount of discharge. The actual cause of these trophic disturbances is still unknown.

In very young children, usually no other measures except cleanliness is possible. For older patients the application of hot air has been highly recommended but it alone cannot bring about a cure. Serotherapy was

much in vogue a few years but has certainly not accomplished what it promised. The same may be said of a form of respiratory gymnastics introduced by R. Foy. In this method compressed air and oxygen are blown into the nose by means of a rather complicated apparatus. There can be no doubt that the nose is freed from discharge and the circulation in the mucous membrane is improved, but the procedure is extremely tedious and will hardly ameliorate the more advanced stages of the disease. Much better results will be obtained from massage and the use of nasal douches, though great patience is necessary even here. If this treatment is begun early, between the eighth and sixteenth year of life, it is even possible to restore the nasal mucous membrane to its normal appearance. One great disadvantage lies in the fact that the treatment must be persisted in for many years and the patients kept under steady control, which is not always possible. The character of the fluid employed in the nasal douche plays a less important rôle, for a selective action upon ozena is shown by neither the alkalies nor the antiseptics. The douching should be done rhythmically with the respiratory movements and both an ante and post nasal douche should be employed. About one quart of fluid may be used twice daily, to be followed by an oil spray. The second most important factor in the successful management of ozena is the use of a proper vibratory massage upon the atrophic mucous membrane. This massage should be employed twice a week and followed each time by a spray of silver nitrate solution varying in strength from 1:20 to 1:5.

The injection of liquefied paraffine under the mucous membrane of the inferior turbinated bone has proven a very successful method of treating ozena. In some cases the mucosa is so brittle that the paraffine will not stay in place; here it is necessary to first treat the patient for some time with the other methods. Many cases have been observed where the paraffine has remained in situ seven to ten years and where the turbinated bones appeared voluminous, though pale and yellow in color. All these patients are either considerably improved or cured of their disagreeable illness.

Wherever the discharge is excessive or persists despite treatment, a sinusitis, usually of the maxillary sinus, must be suspected. The cavity here must be irrigated or a radical operation performed. General treatment calls for the use of tonics and sometimes the iodides.

Prescriptions

Dhobie Itch:

Acidi Salicylici
 Hydrargyri Ammoniaci.....āā grn. xx
 Bismuthi Subnitratiss
 Olei Eucalyptiāā 5j
 Adipis Lanæ Hydrosi.....5j
 M. f. unguentum.

—C. L. Overlander.

Valvular Heart Disease:

When there is also anemia, W. Whitla recommends the following in the treatment of chronic valvular disease:

Tinct. Digitalis
 Tinct. Ferri Chloridi.....āā f. 5ij
 Acidi Phosphorici Dil.....f. 5ij
 Aquæ Chloroformi.....ad f. 5viiij

M. Sig.: Two teaspoonfuls in a half glassful of water four times daily.

In failing compensation the following is a good mixture:

Tinct. Digitalis
 Tinct. Nucis Vomice.....āā f. 5ss
 Spiriti Ammoniae Aromatici.....f. 5jss
 Aquæ Chloroformi.....ad f. 5xij

M. Sig.: One tablespoonful in a quarter glassful of water three times daily after meals.

Seborrhea Sicca:

If the skin is dry, ointments containing tar, oil of cade, or oil of birch may be used:

Olei Betulaem̄xv
 Resorcinolisgrn. iv
 Zinci Oxidi5j
 Adipis Lanæ Hydrosi.....5ij
 Petrolati5ij

M. f. unguentum.

—C. Sabatié.

Acute Gonorrheal Vaginitis:

Ichthyolisf. 5j
 Iodoformi5j
 Acidi Tannicigrn. xxx
 Lanum5j
 Olei Theobromatis

M. Fiant suppositoria No. vi.

Incorporate the ichthyol with the lanum, and admix with the cacao butter and iodoform; then incorporate the tannic acid.

Insert one suppository twice daily, after warm douche of boric acid (5j to Oj) or creolin (m̄j to Oj).

Antiseptic Mouth Wash:

Thymolisgrn. ij
 Acidi Benzoici.....grn. ijss
 Tinct. Eucalypti.....f. 5jss
 Aquæ Destillatæ.....f. 5xijij

M. Sig.: Mouth wash.

Laryngitis:

The following may be used as a spray two or three times daily in cases of laryngitis associated with unpleasant dryness of the mucous membranes:

Sodii Benzoatis5j
 Sodii Bromidi (vel Iodidi).....
 Glyceriniāā 5ss
 Tinct. Eucalyptif. 5j
 Aquæ Destillatæf. 5viiij

M. et ft. solutio.

Chronic Enterocolitis:

Argenti Nitratissgrn. j
 Acidi Hydrochloridi Dil.....m̄xv
 Mucil. Acaciaef. 5ss
 Aquæ Cinnamomi.....ad f. 5ij

M. Sig.: Teaspoonful, diluted, every three or four hours.

—Medical Brief.

Spermatorrhea:

Stryptolis5ss
 Ergotini5ij
 Ext. Nucis Vomicae.....5 5/6

M. div. in caps. No. 100.

Sig.: One capsule every morning and evening.

Pruritus:

Anthrasol
 Zinci Oxidiāā 3j
 Glycerinif. 5jss
 Aquæ Rosæad f. 5x

Pollutions:

The following prescriptions have been recommended by W. J. Robinson:

Tinct. Ferri Chloridi.....f. 5vj
 Tinct. Cantharidisf. 5ij

M. Sig.: Two to seven drops in a little water (preferably Vichy or Seltzer) t. i. d.

Strontii Bromidi
 Sodii Bromidiāā 5iv
 Elix. Digestivi Comp.....f. 5jss
 Aquæad f. 5iv

M. Sig.: One teaspoonful at 4 p. m., at 8 p. m., and on going to bed.

Comedo:

Shoemaker recommends the following formula:

Thymolisgrn. x
 Acidi Borici5ij
 Aquæ Hamamelidis Virg.....f. 5iv
 Aquæ Rosæf. 5j

M. Sig.: Mop well over surface once or twice daily.

Mouth Wash in Scarlatina:

Sevestre recommends the following for purposes of oral antiseptics in scarlatina:

Phenylis Salicylatisgrn. xxx
 Acidi Borici5ijss
 Alcoholisf. 5x
 Aquæ BullientisOj

M. Sig.: As a mouth wash.

Phlyctenular Conjunctivitis:

Cupri Sulphatis
 Potassii Nitratiss
 Aluminisāā grn. j
 Camphorægrn. 1/20
 Aquæ Destillatæf. 5ijss

M. f. collyrium.

—Sabouraud.

Furuncle:

The following ointment on pads of absorbent cotton has been recommended by Hunter in the treatment of common furuncle:

Acidi Carbolicisgrn. xlv to 5iss
 Fl. Extracti Ergotæ.....5j to 5ij
 Amyli Pulv.5ij
 Zinci Oxidi5ij
 Petrolati5j

M.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Infections of Fingers and Hands.—1. Never hunt for pus with a probe in this portion of the body, as it may spread infection.

2. An incision should be made through the point of infection, giving free drainage.

3. If pus is secreted about or in the joint of a finger, pressure on the end of the finger will give rise to pain, while if the pus is in the sheath of the tendon, the same pressure will cause little or no pain.

4. The tendon should never be laid open from end to end as this procedure is almost certain to cause sloughing of the tendon.

5. If the tendon sheath is exposed and found distended with purulent or sero-purulent fluid, it should be freely drained.

6. If the whole tendon sheath is distended with pus it will be necessary to drain its upper end. Incisions for this purpose in case of the index, middle or ring fingers should be made in the palm of the hand directly over the tendon involved.—H. B. Garner, in the *Detroit Medical Journal*.

Transmission of Poliomyelitis.—M. J. Rosenau of Boston says that, despite all the thought and work that has been focused on the problem, the mode of transmission of poliomyelitis is still an open question. The chief theories to account for the spread of the disease are: 1. That it is a "contagious" disease passed directly from person to person through the secretions from the mouth and nose. 2. That it is an insect-borne disease. 3. That it is dust-borne. 4. That it is an alimentary infection, the virus being taken in with food and drink and absorbed from the digestive tract. There is evidence from the field and laboratory for each of these theories. The "contagious" theory is the most natural one, but Rosenau does not consider it proved, though the experimental evidence is strong. We cannot be absolutely sure that an animal has the disease unless we can make the virus reproduce itself and cause the disease through succeeding generations. There has been a long series of negative results in attempts to demonstrate the presence of the virus in the secretions from the mouth and nose, and only a minority of the investigators claim this as easily proved. The virus is widely diffused throughout the body, especially in the spinal cord and brain and in the blood, glands, and even in the intestinal mucosa and feces, as well as in the pharyngeal and nasal mucosa. The regional and seasonal distribution of the disease also present difficulties. It is not most prevalent in the colder months, as might be expected from the "contagious" theory, and is more prevalent in the rural than in urban districts, where it is thought it might be expected most likely to prevail. Rosenau thinks that infantile paralysis as an intestinal infection has not received the attention it deserves. It took us a long time to learn that milk might convey scarlet fever and other infections. There has been a suspicion that the disease is contracted from the lower animals, horses, dogs, etc. Its resemblance to rabies has been noted by many

observers. The dust-borne theory has been given rather scant credit, as it does not have the characteristic of even air-borne infection. The insect theory, especially the part played by the stable-fly, explains some peculiarities, but we need further experimental evidence to assure us that it is the main or only source of the disorder. Among other insects the most positive evidence has been obtained from the bedbug. But a definite answer cannot be made to any of the queries suggested, and the public must be given the benefit of the doubt and the infection combated along all possible lines.—*Jour. A. M. A.*, May 24, 1913.

Skin-grafting.—J. Wiener of New York gives an account of his first case in which he tried skin-grafting without dressings and which has lead him to adopt this plan since that time—a period of six years. The conditions were unfavorable and yet the results were such that he has used this method of open grafting even in desperate cases and almost always with success. He has found it inadvisable to apply a wet dressing, even a bland one, until at least two weeks have elapsed. "The grafts are cut as thin as possible and applied in the usual manner. Suppurating sinuses in the grafted area are packed with iodoform gauze. These packings are changed, as often as they become saturated with the discharge, without disturbing any of the grafts. The grafts can be placed within a half inch of a discharging sinus and they will take. During the first day or two crusts of inspissated serum form between the different grafts; these crusts should not be disturbed. For seven or eight days, or even longer, no dressing of any kind is applied. Usually after the first day or two, the grafts have already become firmly adherent and have a healthy pink color. After seven or eight days a weak ichthyol ointment is applied over the entire grafted area. Under this dressing the crusts that have formed between the grafts drop off, and in a short time the area assumes a normal appearance." He feels justified in recommending the method and thinks that, if the details are properly carried out, the most skeptical will become convinced of its value.—*Jour. A. M. A.*, May 17, 1913.

Great Tenacity of Life.—Turnbull notes that the case of the French Zouave who lived for some time after practically the whole of the head except the brain had been removed by a cannon ball is one of the classical instances of tenacity to life. Weinlechner in 1881 reported that a man had lived and been conscious for twelve hours after a fall and injuries which included fracture of the cervical spine, with laceration of the cord, paralysis (motor and sensory) of all the limbs, rupture of the sternum, bleeding into pericardial and abdominal cavities, and laceration of the spleen. Erichsen reported the case of a man who, after leaping a distance of 60 ft. down a hoist, lived for ten days, although suffering from fracture of seven ribs, perforation of the apex of the right lung, tearing of the pericardium, complete fracture of the first lumbar vertebra, and pulverization of the right os calcis. D'Arcy Power read a paper in 1890, indicating that considerable laceration can take place in the spleen and in the kidney with very slight symptoms, unless a large blood vessel is implicated. If urgent hemorrhage does not immediately follow injury, the

most extreme internal injuries can often be undergone with a minimum manifestation of shock. The following case that came under the author's observation is cited to bear this statement out, and emphatically illustrates the powers of tenacity of life in the human frame: The case was that of a dock laborer aged 45 years who was admitted to the hospital nine hours after he had fallen down the hold of a ship. This man walked half a mile after receiving a fractured skull, extensive fractures of the ribs, pulping of the spleen, pulping of the kidney, and lesions in the vicinity of the solar plexus. A bowlful of blood had probably been passed by the urethra from the ruptured kidney. The patient died one hour after admission to the hospital.—*Brit. Med. Jour., per Med. Record.*

Rapid Method of Ripening Stains.—L. W. Strong, of New York, writes that the awkward necessity of waiting several weeks for hematoxylin stains to ripen has led him to apply a method originally described by Balch for the ripening of Wright's stain.

This consists of a freshly precipitated silver oxide which, when added to any hemalum solution or to any methylene blue solution, will polychromize it within a few minutes.

A gram of silver nitrate dissolved in 50 Cc. of distilled water is treated with a dilute solution of sodium hydroxide, little by little, until no more brown precipitate of silver oxide appears. The fluid should be shaken after each addition in order to secure good flocculation. The precipitate is then washed thoroughly until it is free from alkali. This may be tested by litmus or phenolphthalein; but ten or a dozen washings will suffice. This silver oxide is added to the hemalum or the methylene blue solution, allowed to stand for an hour or two and then filtered, when the stain is ready for use.

Unna's polychrome methylene blue may be ripened rapidly in this way. In preparing eosinate of methylene blue, as in Wright's stain, the methylene blue is first polychromized with the silver oxide for a day or two and then the eosin solution is added. This obviates the necessity of steaming the methylene blue and, what is more important, it is certain in its action, while the steaming is uncertain and sometimes fails.—*Jour. A. M. A., July 5, 1913.*

Cancer of the Uterus.—H. J. Moldt of New York, in describing the symptoms of uterine cancer says that there are none peculiar to the early stages of the disease and that its onset is very insidious and is often undiagnosed and overlooked. Leucorrhea is often an earlier symptom than bleeding and this is particularly true in epithelioma. Every woman who has atypical losses of blood or profuse leucorrhea after the fortieth year, or who has the slightest loss of blood after the menopause, should be examined for cancer, as these are the early symptoms. The diagnosis is too often delayed till the case is inoperable or only a palliative operation can be done. He strongly urges public instruction through newspapers and magazines in regard to the early symptoms of cancer although nothing should be published that does not meet the approval of the American Medical Association. The printing of articles signed by a single medical man is in his opinion reprehensible. From the experience in Germany he thinks that a better way would be to impress on the profession

the grave importance of being conscientious and never superficial in the matter of examination and calling for consultation whenever in doubt. A physician should also be impressed with the great risk of treating with internal or local medication before having made sure that no malignant condition is present. Absolute exclusion of cancer rather than a definite diagnosis of it should be the aim. As regards treatment, he favors the extended abdominal operation for most cases. The exceptions are in the case of very obese patients, cases of cancer of the body of the uterus with that organ freely movable and cases of incipient epithelioma of the intravaginal cervix. Border-line cases are those in which the disease has advanced so far that while one may find it possible to extirpate the cancerous uterus it is very doubtful and improbable that all malignant structures can be removed. In such cases he prefers a palliative cauterization operation as better for the patient. The x-ray treatment is also to be considered, though he himself has not had good results in the cases in which he has tried it. That such cases do occur, however, is unquestionable and he quotes a case reported by Bumm of this character. As a rule surgery is the best treatment.—*Jour. A. M. A.*

Thymus Hyperplasia.—A. Crotti, of Columbus, Ohio, reports two more cases, making seven in all, of thymus hyperplasia and further discusses its pathologic effects. One of the two patients was an adult, the other a new-born infant; sudden death occurred in both. What may be called a latent thymus hyperplasia may occur in children and not come under the surgeon's care. Sudden death may occur without prior symptoms, but there are generally vague respiratory troubles and other signs of ill health. Certain cases of asphyxia of the new-born are explained only in this way. The most striking symptom of the condition is dyspnea, labored respiration or severe choking spells, often alarming to witness. Tracheotomy is useless with the present style of short tubes and longer ones should be provided with every tracheotomy set. The dyspneic symptoms usually appear early and diminish after the second year of life, rarely appearing later. Pressure on the wind-pipe by the enlarged thymus occurs either at the superior opening of the thorax (mostly in children) or, especially in adults, between the brachiocephalic trunk and the common carotid. It is usually shown by the autopsy, but in some cases not, and Crotti accounts for such by the irritation of the inferior laryngeal nerve causing spasm of the glottis. In such cases tracheotomy might be useful. In still other cases direct pressure on the base of the heart, affecting the heart ganglia, may be the cause of sudden death. There are, of course, other causes—stridor and respiratory spasm, such as are gained by adenoids and other gland malformations—and these must be considered in the diagnosis. Thymus enlargement frequently accompanies hyperthyroidism and simple goiter, but its relations to the thyroid are not clear. It is generally accepted that thymus hyperplasia aggravates Graves' disease. The differing views on these questions are noticed by Crotti, who concludes that the true relations of the thymus to the thyroid, as well as its exact physiologic function, are as yet undetermined.—*Jour. A. M. A., Feb. 22, 1913.*

Rat-Proof Buildings.—The recent elemental catastrophes—the cyclones in the middle West, and the floods in that vast region watered by the Ohio—have destroyed many hundreds of buildings. Here, out of misfortune, much good should come. A timely appeal for the rat-proofing of dwellings and other buildings at present existing, under construction or in contemplation, comes from the United States Public Health Service. Those about to erect a new building or repair an old one, whether of frame, brick, rock, concrete or other construction, may learn from a recent bulletin issued from Washington what sanitary and economic benefits are to be derived from permanent rat-proofing; and measures to such ends should be demanded by prospective owners as a part of building contracts. The rat is far too prolific to be exterminated by such agencies as traps, poisons, gases and the like; these may reduce the numbers of the rodents, but if there is food within reach, the surviving rats will be stimulated the more. Rat extermination can be effective only by cutting off the rats' food supply. The bulletin contains all necessary information to this end, so far as relates to buildings. Those already erected can be rat-proofed by the closure of all natural or accidental openings; by being remodeled with material impervious to rats; by the removal of structures which will give refuge to rats, and by the protection or removal of foods which rats will eat.—Ohio State Med. Jour.

Bread as a Vehicle for Conveying Diphtheria.—At a recent meeting of the Académie de médecine of Paris, Dr. René Moreau, health physician at Sens, reported a small epidemic of diphtheria traced to a common source, a baker who transmitted the infection along with his bread sometimes to persons whom he did not see. This epidemic attacked eleven persons and caused four deaths. It was not restricted to a single commune but extended to three at a distance of from 2 2/5 to 3 3/4 miles. This spread was all the more surprising since diphtheria is not frequent in either of the three communes and has not been mentioned since 1905. Although several bakers furnished bread throughout the affected districts, all the patients without exception were patrons of the same baker, whose wife and son were the first attacked. The woman had contracted diphtheria when on a trip to a district where there were at the time several cases of the disease. After the bread was taken from the oven it was placed for a time in the bakery which connected with the sleeping-room of the baker's wife and son. Disinfection of the bakehouse and the houses of the patients put a stop to the epidemic. Although this manner of spreading disease may be rare, says The Journal of the American Medical Association, it is worthy of consideration when an epidemic springs up among persons who have no apparent mutual relations and when no other cause can be discovered.

Defenses of the Animal Organism Against Foreign Materials Entering the Blood Channels.—E. Abderhalden states that the animal organism possesses a powerful defence against all kinds of foreign materials. This is digestion. It destroys every specific structure in the nutrient material offered to it. In addition that which is resorbed passes to the cells of the liver, which again control everything. Similar material thus always passes into the circulation, and the cells invariably receive similar nutrient material.

This harmony is disturbed if the body cells themselves, or foreign cells, such as micro-organisms, or cancer cells pass into the blood still retaining the characteristics of the kind of cell from which they originate. In this case also there is an important safeguard, namely, the lymphatic channels with all their ramifications. If in spite of all the protective forces material reaches the blood which is foreign to it, and which still retains its original characters, various protective measures come into play. On the one hand the excretory organs endeavor to remove the material. In addition ferments are given off by the blood plasma, which have the property of decomposing complex materials, and thus depriving them of their original characteristics. The appearance of certain ferments indicates the presence of various substances in the blood, and thus investigation of the blood by ferments which are developed upon certain substrata gives us an idea of the function of the individual organs. The products of gradual decomposition, due to the ferments, may have a toxic influence.—Canadian Practitioner.

Factors in the Spread of Epidemic Diseases.—G. Sticker writes that we have learnt from the well-known examples of influenza, plague and cholera that he who wishes to ascertain the condition of parasitic epidemics must first of all study their general characteristics. He must then investigate each disease individually and in its whole extent, historically, geographically, biologically, monographically, experimentally, in short, philosophically. It never has been and is not now sufficient to study a disease solely from an anthropological standpoint as a human diseases, but it is essential also to study it from a higher standpoint, that of the leimologist. The leimology of the future will enquire as to what particular time and place are favorable to a particular epidemic, and what unfavorable, which are permanently favorable or unfavorable; whether and to what extent animals and plants participate in the human disease, and whether they do so as sufferers from the effects of the germ or as transmitters of it. Also where the transmitter of the germ harbors it, who its transmitters are, whether animals or plants, whether there are lifeless producers, immediate bearers and transmitters of it, whether normal accessory bearers and lifeless harborers participate; what other epidemics are constantly or occasionally associated with the parasitic epidemic, rendering its course longer and its severity greater, and thus influencing the particular disease under consideration.—Canadian Practitioner.

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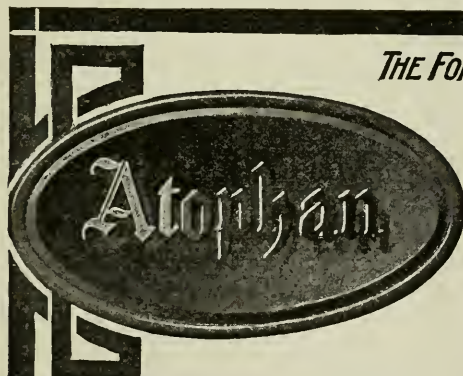
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THE PORTRAYAL OF THE BLIND IN JAPAN.—From earliest times the blind have been favorite subjects for the artist's brush, and portraits of the blind alone do much to reveal the standard of painting at various epochs. The subject was treated with great realism by the Greeks, but the most relentless realism was displayed by the Dutch painters. With the exception of the Dutch school, however, Japanese artists are, according to Professor Greeff,¹ the most faithful portrayers of blindness in its many aspects. In an interesting paper he brings out many curious features of the life of the blind in Japan, and of their portrayal by Hokusai, who was born about the year 1759. He ranks in European opinion as Japan's greatest painter, yet he appears to have been ignored by his contemporary fellow countrymen, and to have died in poverty and obscurity. After middle age he issued a series of sketches representing life in Japan, and he depicted as many as twenty-four distinct types among the blind. His vivid realism lays him open at first sight to the charge of caricaturing. But Professor Greeff thinks that such an interpretation is unjust, and that the artist has caught true, but possibly fleeting, expressions of the blind. Some appear happy and scarcely affected by their blindness, others bear the stamp of sorrow and resignation, others look stupid, and others again are portrayed as idiots. Their attitude, gait, and expression betray the action of a common affliction on characters of widely different type. Massage is an accomplishment commonly acquired in Japan by the blind, whose sense of touch is naturally well developed; and, as massage has been in common use since the eighth century, the blind masseur is well established. Massage is to-day prescribed for almost every form of illness, and it is commonly employed after baths or exercise. It is therefore not surprising that even the smallest villages in Japan can boast a blind masseur, and that he has been frequently depicted in the exercise of this art. Professor Greeff reproduces two such scenes depicted by Japanese artists, who evidently have caught characteristic expressions of both the masseur and his subject. The former, in one sketch, wears an expression of grim determination as he apparently digs his elbow into the small of the back of his subject. The latter's quaint expression of resignation scarcely suggests pleasurable sensations. In the other sketch, the masseur's expression denotes extreme despair and exhaustion, while the fatuous and languishing expression of his subject suggests the placid contentment of a pig being tickled.—Brit. Med. Jour.

AFTER THIRTY, few have perfect renal function.—Urologic Review.

THE VIRUS OF RABIES AND THE NEGRI BODIES.—A distinct advance in the diagnosing of rabies followed the discovery by Adelchi Negri in 1903 of certain cellular inclusions constantly present in the nervous system of animals affected with this disease. In the past ten years many of our health boards have used means for the recognition of these bodies which have come to be regarded of prime importance in the diagnosis of rabies. Negri himself worked for nearly ten years in studying these bodies and successively demonstrated their presence in various animals suffering from rabies. His work has been confirmed by many observers the world over. The findings have been so generally uniform that it has come to be recognized that when Negri bodies are found in the ganglion cells of the hippocampus major it is a positive sign of rabies. These bodies have been further studied by researchers with a view to proving their parasitic nature, but without advancing our knowledge of them any more than in the case of the Guarnieri bodies caused by vaccine virus. The smallest of these bodies are almost ultramicroscopic and react to stains like nuclear particles, but the largest—the typical Negri bodies—are readily differentiated from nuclear particles by appropriate staining methods. Any further light upon the significance of these bodies is to be welcomed, especially since, every now and then, some false prophet preaches that there is no such disease as rabies. Pasteur's work alone in 1884 should refute this.

Recently Acton and Harvey of the Pasteur Institute in India have published a report of their studies on the fixation of rabies virus in the monkey (*Macacus rhesus*) with a study of the appearance of Negri bodies in the different passages (*Parasitology*, Vol. 5, No. 4, February, 1913). These authors found that the street virus of the dog becomes exalted and fixed by successive passage through the monkey, just as in the rabbit and other animals; the type of rabies being at first furious, but after the seventh passage paralytic. With each successive passage the Negri bodies were found to be smaller in size until ultramicroscopic. After the seventh passage, when the paralytic form of rabies was fully developed, very few Negri bodies were found. This diminution of the number of Negri bodies seems to bear a definite relation to the fixity of the virus as shown by another experiment. The authors inoculated two bullocks, one with street virus and the other with fixed virus. The street virus caused large Negri bodies, whereas the fixed virus caused none at all—and this in an animal showing the largest Negri body known.—Med. Record.

ROMAN MEDICINE IN EPIGRAPHY.—The new departure just taken by the University of Manchester in reinforcing its Latin chair by another in which epigraphy, or the literature of inscriptions, mainly sepulchral, is to receive special study, coincides with the enhanced interest awakened in that branch of philological and antiquarian research. In Italy especially the rapidly accumulating accessions to epitaphial literature are attracting students in ever greater numbers, British, Transatlantic, and Continental; and the light thus thrown on the civilization of the Latin world, illuminating as it has already proved, will, before the century is much older, place in yet fuller and more impressive relief the daily

life of the Roman citizen, and urban and provincial, clearing up many of its obscurer recesses and conducing to a juster appreciation of the public as well as private conditions under which the said citizen lived and died. In a very scholarly paper read before the British and American Archaeological Society of Rome, and just published in its journal, Dr. Tracy Peck, emeritus professor of Latin in Yale University, dwells on the thousand sepulchral inscriptions referring to the professional or business man contained in the sixth volume of the "Corpus Inscriptionum," or brought to light since its publication in 1882. Out of that thousand, no fewer than 230 callings of trades come into view—a number readily to be realized when we find how multifarious were the requirements and, consequently, how numerous was the retinue, of officers of State under the Empire—a fiscal agent in Lyons, for example, who died in Rome on a visit to the Emperor Tiberius, having in his train three secretaries, a physician, a master of the wardrobe, a treasurer, two chamberlains, a steward, two footmen, two custodians of the silver plate, and, apparently, a concubine. The medical calling numbers as many as 60 representatives among the 230 referred to, and these include not only the consultant and the general practitioner, but the oculist, the veterinary surgeon, the "aliptes" or anointer, and other such specialists. The elder Cato, imbued with the prejudice, not unknown in our day, against the practitioner from abroad, warns his son to keep at arm's length all "Greek doctors," but, in spite of the "boycott" thus inspired, the interloper from Hellas became ever more in evidence, till more than half the 60 medical men alluded to hailed from that country or bore such typical Greek names as Alexander, Philomusus, Heracles, and Menander. For more than six centuries, as we know from Pliny the Elder, Rome "was without doctors," though not without medicine; that the Peloponnesian Archagathus was the first physician recognized as such in the city; that on his arrival he was so highly esteemed as to be honored with the right of citizenship and an official post at the expense of the State, but that his frequent resort to the knife earned him and his imitators the name of "carnifex" (butcher). Those, however, were the days of increasing luxury and dread of pain, few Romans having the pluck of the plebeian consul Marius,

who bore without wincing a whole series of operations on his varicose veins. Pliny is further our informant as to the princely fees or "honoraria" earned by physicians in high practice—many of them amassing from their incomes the means of purchasing their freedom and of enriching their respective communities with benefactions. Such was the case, as Professor Peck tells us, with Eros Merula, a Greek physician, according to an inscription immured in the Temple of Minerva at Assisi. Dentistry, we find, was early practised as a profession in Rome—false teeth, crown-filling, and gold plates having been in use not in Rome only but in Italy several centuries before Christ. Indeed, we know from the Twelve Tables that, to check extravagance at funerals, it was made illegal to burn or to bury gold with the dead, "unless the gold was attached to the teeth." As to the apothecary, our information, according to Professor Peck, is still to seek, though Cicero (he reminds us) mentions a druggist who disposed of his wares from one rendezvous to another, as a "pharmacopola circumforaneus." But we are as yet on the threshold of further insight into the professional life of antiquity, and it is to such new departures in academic equipment as that taken by Manchester that we must look for the studies, extensive and intensive, by which the veil will yet be lifted from the *vie intime* of the pagan world.—Lancet.

GLUTTONY.—It is a strange instance of the perversity of the human mind that, whilst moralists and novelists join hands in denouncing the misery caused by drunkenness and avarice, few of them have attempted to paint the equally unpleasant effects of gluttony. Yet no reader of *Le Cousin Pons* is likely to forget the fate of the unhappy musician whose love of good cheer condemned him to lead the life of a parasite at the table of his rich relations, and whose troubles all arose from his inability to abandon the dinners that afforded him such heartfelt satisfaction. It is hardly surprising that Balzac should have felt his hero's sufferings so keenly, since, according to Dr. Cabanès, whose article on "The Temperament of Balzac" appeared in the September number of *L'Hygiène*, the great man himself was not entirely exempt from the same

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failing. Notwithstanding his almost monastic life, Balzac had all the true Frenchman's appreciation of good cookery; and whenever the overwhelming pressure of his work allowed him a little breathing space he loved to gratify his taste for certain favorite dishes. As a rule he ate very little meat, but consumed vast quantities of fruit, of which he was inordinately fond; and whilst at work on one of his innumerable masterpieces he was quite content to live for days on a diet of eggs and black coffee, the latter being carefully prepared by himself after a particular recipe. Directly, however, he permitted himself a short respite from his almost unceasing labors, his natural appetite reasserted itself and assumed its normal proportions. What these proportions were may be judged from the menu of a dinner eaten by him on one occasion, to the stupefaction of an entire roomful of people. This meal consisted of a hundred oysters, twelve cutlets, a duckling with turnips, a brace of roast partridges, and a sole, together with the usual hors-d'oeuvre, side dishes, and desserts, the whole being washed down by various choice brands of wine. We are told by one of the eye-witnesses of this gastronomic feat that by the time Balzac had finished nothing remained on the table but the bones. Perhaps it was only the natural result of this reckless abuse of a magnificent constitution that Balzac died when little over fifty years of age, a worn-out and prematurely aged man, at a time when he should have been in the full flower of his physical and intellectual vigor.—Brit. Med. Jour.

WHEN OPERATING upon an incarcerated umbilical hernia, especially in an old or enfeebled subject, it may be quite desirable to enlarge the ring by incision *before* opening the sac. This will facilitate the reduction of the bowel promptly after its exposure.—Amer. Jour. Surg.

VERBOMANIA: THE DISEASE OF THE DAY.—It would seem even after a cursory examination of our text-books and dictionaries that the number of diseases which are to-day chronicled should suffice; but such is the desire of all men in the pursuit of knowledge that the goad of which they are most enamored is the one which is productive of burdening the already weary medical mind with new terms and new interpretations, so that the educative factor in a physician's career shall not become a negligible quantity. The latest addition to our knowledge of various diseases—and we write latest guardedly lest some wiser person than ourselves might hold us up to ridicule on account of our lack of exact information—is a chapter in psychopathy that has been left to lie fallow too long, since it is applicable to one of our greatest national sins, a sin that has been commented upon by all visitors from abroad, from Mrs. Trollope to Pierre Loti—namely, our talkativeness on all subjects, born, as we defensively put it when too severely criticised by foreigners, by our unquenchable thirst for knowledge, but construed by the same foreigners as a blot on our civilizations. And just because we have not mended our ways, even though the remarks from our critics have been far from gallant—perhaps their severity and acrimony have made us more obdurate—should we be averse from cogitating over what is contained in the 276 pages of Dr. Ossip-Lourié's recently published book in which he not only defines ver-

bomania but tells us how mankind is to rid itself of a disease that is permeating all ranks of society? Surely not; for here may be found not only the etiology of the disturbance, scientifically expressed, but such simple means to combat it that we cannot but be moved to some show of a willingness to reform now that the lustration, out of which we may emerge as a more gracious and a more normal nation, is prepared by one who belongs to the medical ranks!

No doubt by now it will be asked by the reader of the foregoing lines what really constitutes this strange disease, and why it required these many years for an investigator to arise who would lay bare its causes and then allay our fears by an assurance of its curability. If, as Dr. Ossip-Lourié contends, the disease develops in families, cafés, restaurants, at banquets and lectures, we are really not assuming too much in stating that, with the exception of the last, not one of these is peculiar to modern life, since each was undoubtedly an integral part of life as lived in large cities many decades back. Hence the stigma of modernity must be withheld; which is very fortunate, indeed, for has not the medical press latterly teemed with alarming statements in connection with the grave disturbances entailed by our present-day frenetic mode of life? But though this can be asseverated, it does not belittle the importance of the disease in the author's mind, nor does it rob it of all those alluring qualities—again, according to the author—which have the power to hold the medical mind as in a thrall.

To talk too much and converse too little has characterized other nations besides the American nation; but even though unforgetful of a national pride that should inhere in each and every one of us, it must be admitted that our talkativeness very often, alas! approaches Dr. Ossip-Lourié's definition of verbomania. Take our banquets, for instance. Who of ordinary intelligence has not remarked the interminable phraseology of the men called upon to speak—the desire to talk longer than a predecessor, flowery speech that would make even artificial flowers sigh were they on the banquet-board, rodomontade pushing rodomontade for place, anecdotes ricocheting across the room, and all the time the speaker's eyes dancing with pleasure when in reality they ought to be wreathed with melancholy, for is he not a perfect exemplar of verbomania? Now, if his sins would end there, who would complain: but when we think of the young and guileless men who are stretching forth invisible hands haps are dreaming of the day when they too will hold a similar audience spellbound, we have again an illustration of how the disease may arise, according to the author—through imitation of someone whom popular vote has pronounced an adept in verbiage. But whether verbomania occurs through custom or imitation, he who has it bears unmistakable stigmata and can be scented from afar, so to speak: an advantage, we take it, over other diseases that only too often baffle even out-of-the-ordinary intelligences in the medical profession.

The cure for this disease must be self-imposed; and though Dr. Ossip-Lourié overlooks the fact that it must be an herculean effort for an acclaimed, or, for that matter, a boresome talker to cease, his advocacy of complete silence should be gratefully received by all as a humane procedure compared with what in our ignorance we thought should be meted out to the offender—was it the gag as applied by ourselves or the law

as invoked by the nearest policeman? How long this silence should last must be judged by the physician in attendance; and, though he may err as to the length of time, he can easily remedy his mistake by applying this simple therapy again and again in the same case, provided the patient's tractability continues. That it should discontinue is within the bounds of reason, but on this point Dr. Ossip-Lourié is not explicit. Still, when we remember how the cure is effected, it can easily be impressed on the patient how foolhardy he is to object to some weeks of silence that have all the sweetness of solitude and none of the bitterness of drugs, and which cannot but result in his own restoration to a normal manner of talking, at least until his imitative qualities are again aroused by a lecturer, or by a speaker at a banquet.—*Interstate Med. Jour.*

BLOOD PRESSURE OBSERVATIONS every few minutes are essential to the safe conduct of intracranial operations.—*Amer. Jour. Surg.*

MADAM DE SEVIGNE AND HER PHYSICIANS.—During the seventeenth century, Vichy was one of the chief watering-places of Europe, as it is still the most frequented in France. Situated on the river Allier, not far from Moulins, it has been celebrated since Roman times for its hot mineral springs, which recently, like most other such thermal waters, have been discovered to owe much of their virtue to radioactivity. The Romans knew the town as *Vicus Calidus*, a name later mitigated into Vichy. Thither celebrities in all ages have repaired for their annual "cure," to counteract the results of their unhygienic living during the remainder of the year.

Among those who thus patronized Vichy for its healing waters and incidental social diversions was Madame de Sévigné, the famous French marquise, who, after her husband's death, carried on with her daughter, Madame de Grignan, the celebrated correspondence which has justly given her a place among the great letter-writers of history. The season at Vichy usually began about Whitsuntide, and in one of her letters dated May 20, 1676, as quoted in the issue of the "British Medical Journal," Madame de Sévigné describes her life there as follows:—

"I took the waters this morning, my dearest, Oh how nasty they are! . . . We go at six o'clock to the spring, everybody is there. We drink and make very wry faces, for only fancy! they are boiling hot and have a very unpleasant taste of saltpetre. We go and come, take a walk, hear mass, pass the waters, speak confidently of the manner in which we do this; this is the only subject of conversation till noon. Then we dine. After dinner we spend the afternoon, with some one of the party. To-day it is my turn to be hostess. . . At five o'clock we take a walk in delightful country. At seven we have a light supper and at ten we go to bed."

Again, under date of May 28, 1676, she writes naively of the details of the hydrotherapy and of her doctor:—

"I began the douche to-day. It is a fairly good rehearsal of purgatory. One is naked in a little underground place, where there is a pipe of the hot water, which a woman plays on you wherever you wish. This state, in which one scarcely retains a fig leaf by way of clothing, is somewhat humiliating. I should have liked to have had my two maids that I might see some one whom I

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knew. Behind a curtain is placed some one who keeps up your courage during half an hour. In my case it was a doctor from Gannat, whom Madame de Noailles has taken with her to all her watering places. She likes him much. He is a very honest fellow—not a quack, and without prejudices. She sent him to me out of pure friendship. I will keep him, whatever it costs. for the doctors here are unbearable, and this man amuses me. He is not like an uncouth doctor. . . . He has wit and good manners. He knows the world, and I am satisfied with him. He talked to me while I was in torture. Picture to yourself a jet of water as boiling hot as you can imagine thrown against any part of your poor body. At first the alarm is spread everywhere in order to stir the spirits into movement. Then an attack is made on the joints which are affected. But when they come to the nape of the neck it is a kind of fire and a surprise beyond understanding. That, however, is the essence of the matter. Everything has to be suffered and one does suffer everything, and one is not burnt, and afterwards we go to a warm bed where we sweat profusely and it is that which cures us. Here, again, is where my doctor is good. For instead of leaving me to two hours of the boredom, which is inseparable from the sweating, I make him read to me and that amuses me."

This doctor appears to have made a great hit with his patroness, for on June 1, she says of him:—

"He is a good liver; he is not a quack; he practices medicine as a gentleman."

Some ten years later, Madame de Sévigné was again taking the cure at Bourbon-Lancy, a smaller neighboring watering-place, the Roman *Aquae Nisinei*. Here, however, she had a different doctor, one Amiot, of whom also she seems to have held high opinion, and of whom she writes, under date of Sept. 22, 1687, as follows:—

"We have a doctor who pleases me. This is Amiot, a man with a reasonable dislike of bleeding. He has a good opinion of Vichy, but is convinced that the water of this place will do me at least as much good. As for the douche he will have it administered as delicately as if he did not wish me to have it at all. He says we should inform M. Alliot that the remedy is too violent and more apt to excite the nerves than to cure them; that purging the humors and the sweatings which the water and the hot baths will cause will be enough. He speaks sensibly and will guide me with the greatest care."

That Amiot had "a reasonable dislike of bleeding" shows him at least to have been a man of sense. Evidently he was a conservative, not given to drastic measures in therapeutics. Later Madame de Sévigné writes of him:—

"Besides being a very good physician, he has here a little apothecary who is capacity, wisdom, and experience itself. Both say. No douche. They would think it a crime to attack a health such as mine. In a word, they excite confidence by being the first to condemn their remedies when they are not suitable."

Madame de Sévigné died on April 18, 1696. Unfortunately the medical details of her demise have not been preserved. The account of her physicians, however, and of the manner of French hydrotherapeutics in the seventeenth century, remains of perennial historic and literary, as well as medical interest.—Boston Med. and Surg. Jour.

GASTRO-ENTEROSTOMY should not be performed unless there is, or is deliberately made, an obstruction in the duodenum or at the pylorus. If these remain, or become patent, the food will not be diverted through the artificial channel.—Amer. Jour. Surg.

THE PINEAL BODY.—At a particular place on the upper surface of the primitive tubular brain which characterizes all vertebrates there is an excrescence known as the pineal body or pineal gland. In mammals this outgrowth is comparatively insignificant in size, and is completely hidden from view, when the skull is opened, by the enormous development of the cerebral hemispheres and other parts of the brain. Nevertheless, the pineal body exists in all vertebrate animals except a very few degenerate species at the lowest end of the scale; and it can be traced through fossils to a very remote antiquity. The Darwinian theories and the new light which they shed on embryology and phylogeny invested the pineal body with remarkable interest; for it was then recognized that the organ is, in fact, the vestigial relic of a median eye. Classically minded biologists did not hesitate to recall the story of the Cyclops, and to suggest that that legendary Homeric character was perhaps drawn from a vague tradition of some creature which actually used a "pineal eye" situated in the middle of its forehead.

There, for a space, the pineal body was left stranded, labeled as a useless relic of a long-forgotten usefulness. But lately investigators

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have turned their attention to the pineal body once more, struck by the remarkable fact that this despised rudiment has managed to hold its place from palaeozoic times down to the present day. If it were really as functionless as was once supposed, surely it would have disappeared long ago, it was argued. And so it has turned out; for careful research has proved that the pineal body has very important functions indeed, though the full detail of all that it does has not yet been completely marked out. Most of the work has been done abroad; and hitherto the literature on the subject in English has been very meagre. In the "Medical Chronicle" Dr. Leonard Kidd removes this reproach, and reviews in great detail all that recent years have disclosed concerning the mysterious pineal gland. Pineal medication, as he says, is still in the clouds, and is probably the only form of organotherapy which has never been tried. If it ever comes (surely it will, Dr. Kidd), he hopes it will follow, not precede, the experimental study for which he pleads.

What, then, are the known facts at present about the pineal body and its properties? It is fairly safe to agree with Dr. Kidd that it is a metamorphosed, not a rudimentary, useless, degenerating, or disappearing organ; and that it probably furnishes an internal secretion, analogous to those of the thyroid, pituitary, etc. His further conclusions are also justified by such facts as have been ascertained so far, though the next few years may possibly modify some of them. Thus he holds that the pineal body of very young birds and mammals has an inhibitory action on the development of the testes, and through them on bodily growth and the appearance of the secondary sexual characters. The relation of the pineal body to the ovaries is less clear, and further research is required before a definite statement can be made. To the pituitary and the adrenal relationship is probable, to the thyroid and thymus possible; but on these points nothing certain has been established. It also seems likely that the pineal has some other function besides the prepubertal, and that this other function goes on right up to old age; for a partial involution occurs at puberty, corresponding to the waning of the one function, while other elements of the gland remain fully developed throughout life. Indeed, Dr. Kidd thinks it possible that the pineal has three functions, not two; but he admits that at present it is not possible to say how the gland functions. At any rate, it is clear that a splendid field is open for research, and the voluntary hospitals offer the best opportunities of clinical material to those who set themselves to find the clue to the problems involved.—Hospital.

DO NOT NEGLECT to examine the urine in all cases of stubborn eczema about the genitals of either sex.—Urologic Review.

NEUROBLASTOMA.—The history and literature of neuroblastoma, to which attention has recently been called by J. H. Wright, are reviewed and discussed by Douglas Symmers, of New York, who reports a case in which a careful examination of the tumor was made. This, as far as he has been able to learn, is the fourteenth one in which the tumor has been definitely recognized. He sums up his paper with the following: "The

neuroblastoma is a malignant tumor composed of undifferentiated nerve-cells or neuroblasts and springs most often from nests of such cells lying in the medulla of the adrenal capsule, but occasionally from identical cells existing in other localities. The tumor presents a characteristic histologic picture marked by the presence of delicate fibrils supporting cells with scanty cytoplasm and richly chromatic, rounded nuclei, the cells being arranged diffusely, or in the form of rosettes, around tangled masses of fibrillated or homogeneous material staining pinkish with eosin. In certain cases the fibrils are absent or poorly developed, rosettes cannot be seen, and the richly cellular character of the tumor may, in these circumstances, lead to the diagnosis of sarcoma. In deference to its cellular unit the growth in question is most aptly provided for under the designation of neuroblastoma. Of the fourteen cases the most striking feature consists in the fact that nine occurred in infants ranging from still-born to 19 months of age, and that in eight of the nine cases the origin of the growth was determined in the medulla of one or both adrenal capsules: in the other case the seat of origin is not stated. Of the nine cases observed in infants four were in males and four in females; in the remaining case the sex is not given. Three of the fourteen cases were encountered in adult males; in the other two the sex and age are doubtful. In these five cases adrenal capsules do not appear to have been primarily at fault, although definite information on this score is wanting. In children it would appear that the growth is divisible clinically into two symptomatic groups, one attended,

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roughly, by secondary exophthalmos, ecchymosis of the lids, infiltration of the cranium and regional lymph-nodes, the other by rapidly increasing distention of the abdomen due to neoplastic infiltration of the liver and unattended by noticeable ascites or jaundice. In adults the number of recorded cases is too small and the clinical manifestations too bizarre to merit more than passing notice at present."—*Jour. A. M. A.*, Feb. 1, 1913.

FRIAR'S BALSAM (tinct. benzoin comp.), to be reapplied from time to time, forms a protective film quite useful for wounds of the mucous membranes (as after operations in the mouth or anus) and for other moist surfaces, e. g., cracked nipples.—*Amer. Jour. Surg.*

IF A SEPSIS OF UNKNOWN ORIGIN is associated with a positive blood culture, don't fail to examine the ears. Sinus involvement from otitis media may be present with little objective evidence and no other symptoms than fever and chills.—*Amer. Jour. Surg.*

FUNCTION OF THE PERIOSTEUM.—H. G. Wetherill of Denver, after noticing the commonly accepted theories of the osteogenic function of the periosteum, quotes the contesting views of Sir W. Macewen and gives the history of two cases which bear on this subject. Among the important questions to solve, Wetherill says, is why occasionally we see apparently unaccountable destruction of the diaphysis without any effort at reconstruction and in another case equally extensive death of the bone with immediate regeneration and restoration of perfect bone. The points at issue are stated as follows: 1. Has the periosteum, *de novo*, an osteogenic function, or is it in the main a limiting membrane, which prevents over-growth into the surrounding tissues? 2. Can bone live and grow and proliferate when denuded and disassociated from its periosteum? 3. When transplanted to fill a gap does it become osteogenic or is it merely osteoconductive?" In one of his cases there was complete reproduction of the shaft of the fibula withdrawn from its periosteal sheath and afterwards completely restored, and he had for years considered it a typical illustration of the power of the periosteum to reproduce bone. After reading Macewen's work he is inclined to believe that the restoration was due to osteoblasts thrown out

from the diaphyseal bone and that the periosteum had nothing to do with originating the new bone. The second case was different. The diaphysis was destroyed by a fulminating osteomyelitis for nearly two-thirds of its length and its total circumference; and though the periosteum was not destroyed, no continuity in the restoration in the diaphysis had been attempted by the periosteum so far as observed at the time of operation of grafting a segment denuded of its periosteum from the opposite fibula which was followed by complete restoration. "Indeed, it appeared that the pointed ends of the bones had been covered by the collapsed infolding of the periosteum so that the growth of each fragment toward the other had been arrested by the periosteum and union so prevented, all which points toward a limiting function rather than an osteogenic function for the periosteum." If others can report similar observations we will have to rewrite much of the literature of medicine, and the practice of bone surgery will be revolutionized. Wetherill finds his two cases explanatory of other of his observations under similar conditions.—*Jour. A. M. A.*, March 29, 1913.

CRINOLINE GAUZE provides a better body for plaster bandages than soft gauze. The plaster should be spread evenly into the meshes. To be most serviceable a plaster bandage should be very loosely rolled. It may be kept air-tight in gutta-percha sealed with chloroform.—*Amer. Jour. Surg.*

THE INFLUENCE OF INTRAVENOUS INJECTIONS OF MERCURY UPON ANTIBODY FORMATION.—The treatment of puerperal fever by means of intravenous injections of corrosive sublimate was introduced about four years ago and rather extravagant claims were made in its favor. The method has probably not received a very thorough trial, and certainly theoretical considerations have been opposed to its use. One of the observers at that time, however, was impressed with the results, and has investigated the effect of such injections upon the antibody content of blood serum. Kalledey concludes from his work (*Centralbl. f. Bakt.*, Vol. lxviii, p. 358) that the intravenous administration of small amounts of mercury bichloride results in an increased antibody and complement formation in both sick and healthy animals. He studied the quantitative changes in the complement, and the normal agglutinin and lysin of

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pregnant women, and the specific agglutinin and lysin in rabbits immunized against sheep's red cells or the typhoid bacillus. All of these bodies reacted similarly, and it seemed to make no difference whether the dose was three or five milligrams. Following the injection there was a rather rapid fall, corresponding to a "negative phase," which reached its maximum in two days. Then began a gradual rise so that the number became normal about the fifth day and reached its height about the tenth day. The number gradually declined again until at the end of fifteen days the value of the serum was again normal.

The author is naturally reluctant to offer any explanation as to the manner in which this change is accomplished, but is inclined to believe that, as mercury is a protoplasmic poison, the negative phase represents a primary destruction of the cells. After this the cells are stimulated to increased production of protective substances. He believes that arsenic, and therefore salvarsan, acts in the same way, and that it is the quantity rather than the quality of the antibodies which determines the cure. It would be contrary to the rule for the body to react in this way to an inorganic poison, but his experiments seem conclusive and are certainly worthy of attempts at confirmation. Other recent work would tend to indicate that the quality of the antibody is of the highest importance, although no doubt the number of such bodies is not wholly a negligible factor. There are not lacking enthusiastic advocates of the use of mercury in the treatment of all infectious diseases, and this work would furnish a theoretical basis for their methods. The influence of the administration of mercury and salvarsan upon the Wassermann reaction, however, apparently constitutes a formidable objection which will have to be explained away before the theory finds general acceptance.—*Med. Record*, May 17, 1913.

TO RENDER A PACKING introduced for epistaxis easily removable insert a rubber finger cot into the nose, hold it open with clamps and pack the gauze into this.—*Amer. Jour. Surg.*

CEREBROSPINAL MENINGITIS.—The special features and statistics of an epidemic of cerebrospinal meningitis, or rather of the cases treated at the Kansas City General Hospital, 230 in all, from January 1 to June 1, 1912, are given by A. H. Parmelee of Minneapolis, and a table is given of the clinical records of the patients. The symptoms are described also in detail. Neck rigidity was practically universal, but it was not always an early feature. Petechiae occurred in 21.3 per cent. and was most frequent in the latter part of the epidemic. Cramps in the legs were quite commonly among the earliest symptoms. The total mortality was 52.6 per cent.; not counting patients in the hospital less than an hour, 46.5 per cent.; eliminating those aged 50 years and over and those 2 years and under, 41.7 per cent. Of the first there were thirteen, all of whom died; of the second, seventeen, of whom eleven, or 64.7 per cent., succumbed, thus showing that the disease was most fatal in the extremes of life. The smallest percentage of any age was from 10 to 18, 35.3 per cent. Antimeningitis serum was used in all cases when it could be obtained. Six patients received none of the serum and several others only a small amount. Normal horse-serum was used in a few cases.

Salt solution or weak phenol solution was used in a few others, but without apparent effect. Improvement was seen in some from relief of pressure by withdrawal of spinal fluid, but it was only temporary and either the patients thus treated died or the disease was very protracted. Aside from the serum the treatment was symptomatic. The method of administering serum was practically the same in all cases, modified, of course, by the age and general condition of the patient. An initial dose of from 30 to 45 Cc. was usually given to adult patients as soon as they reached the hospital; a second injection of from 20 to 30 Cc. was given from twelve to eighteen hours later, and subsequently one or two doses of from 20 to 30 Cc. and a dose or two from 10 to 15 Cc. at intervals of twenty-four hours. The continuance of the serum treatment depended, of course, on whether or not meningococci were still present in the spinal fluid. In favorable cases the number of organisms in the spinal fluid was rapidly diminished and there was usually none after the second or third injection, but if then discontinued relapses were more apt to occur. Some patients were treated with serum for weeks before the infection finally subsided. Parmelee is satisfied that the treatment materially shortened the cases that showed any response to treatment, that complications were much less frequent with serum and that remarkable results were seen in cases in which it was administered early. This he attributes to the specific action of the serum on the infection.—*Jour. A. M. A.*, March 1, 1913.

WHEN IT CAUSES SUPPURATION, a foreign body is usually easily found, but if there be difficulty in locating it, it is better to be content with drainage for a few days rather than expose uninfected areas by a prolonged search.—*Amer. Jour. Surg.*

AN ALLY WORTHY OF CONFIDENCE.—It is going on toward twenty years since Gray's Glycerine Tonic Comp. was first placed at the service of the medical profession. During all this period Gray's Glycerine Tonic Comp. has maintained the standards that first attracted attention, and the busy practitioner has ever found it an ally worthy of confidence. It never disappoints and in the treatment of atonic conditions, particularly of the gastro-intestinal tract, it is often the one remedy that will produce tangible and satisfactory results. The physician who does not use it in his practice is denying his patient many benefits that can be obtained in no other way.—(Purdue-Frederick Co.)

THE REMOVAL OF A WEDGE of skin at the side of an ingrown nail, as in Cotting's operation, is rarely necessary and usually objectionable. Granulations disappear quickly when the nail segment is withdrawn; if they are exuberant they may be snipped or burned off.—*Amer. Jour. Surg.*

BRIDGE.—Cecil Rhodes, in his way the most remarkable man that England has produced within a century, was, as every empire builder must be, a person of extraordinary and indomitable energy and great physical strength. Unfortunately, probably due to some virulent infection in early youth, Rhodes suffered from some valvular disease of the heart. Notwith-

standing this he led an active and energetic life, indulging extensively in those sports peculiar to a but partially settled country. One of his biographer's characteristic descriptions of life in South Africa pictures it as follows: "He returned to Cape Town in May, and shortly afterward sailed for Beira, with the intention of making an extended tour through Rhodesia. Rhodesia is an ideal country to travel in in the winter, and we had a most delightful time. We covered on an average thirty miles a day. We had our sporting days and shot every day. We rode about a mile away from the road, and, as the dogs pointed, we dismounted and fired at whatever game they put up and then continued our journey. The game was tied to our saddles. Rhodes was a very fair shot and delighted in 'wiping our eyes,' as he called it, when he brought down a bird after any of us had shot at and missed it. He was never happier than when he was on the veldt. He loved nature and the simple life one led when on the veldt. Riding thirty miles a day and walking another ten miles in pursuit of game, was sufficient exercise to tire the most robust, and the result was that we all retired very early at night."

But this financier, statesman and *pater patriae* to one-half of a vast continent, acquired an evil habit, and the description of this habit and its ill effect on this distinguished man by his Secretary Jourdan may point a moral in many cases for the American physician. Writing of the events of the year 1899, Jourdan says: "It was about this time that he developed a liking for bridge, and, for my part, I was very sorry to see it. It entirely changed his habits. Many said that bridge was good for him, that it was his recreation, and served to rest his brain and take his mind off other matters. I differed in so far that it did him any good or that it was a recreation to him. He derived no benefit from sitting in a smoky atmosphere—sometimes till the early hours. Before he took to bridge he was in the habit of going for a long ride every morning at daybreak, and again in the coolness of the afternoon. The fresh morning air invigorated him and the riding gave him the requisite exercise which enabled him to sleep well at night. As time went on he became passionately fond of bridge, which he played regularly every night with the result that he rose later in the mornings and went for his ride at a later hour, sometimes after the freshness of the morning had gone. His rides in the morning became shorter and were taken with less regularity. Sometimes days passed when he did not ride at all. I could not help noticing that from the time he neglected his riding his heart began to trouble him more frequently. He was now, physically, quite a different man to the Rhodes I had first met. He used to return from his early morning rides bright and full of life, looking the picture of health. Now he sometimes did not leave his room till breakfast time. Sometimes his face appeared swollen and had a blueish hue."

Rhodes died three years later of this heart affection.

One case does not establish anything with any degree of scientific accuracy in pathology or prognosis, but the Rhodes case, as an illustration, may enable some of us to divorce some of our patients from the bridge table before they go to physical ruin.—Lancet Clinic.

CHRONIC TENOSYNOVITIS at the wrist may be differentiated from other swellings (e. g., lipoma) by fullness and fluctuation in the palm when the prominent area is pressed upon.—Amer. Jour. Surg.

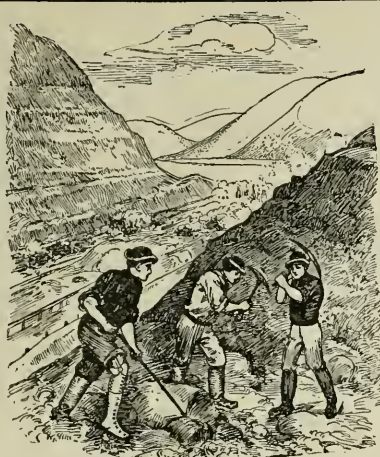
MORBUS INDECENS.—With a false sense of dignity most Roman physicians of ancient days refused to treat secret diseases—applying to them the generic term *morbis indecens*—and a result was general neglect in the treatment of this character of ailments. The nobility and rich citizens, however, obviated any inconvenience which might arise through the profession's disregard for private diseases, by attaching a slave doctor to their households. This slave doctor usually occupied a position of trust in the family, was privileged to enter into its councils and was entrusted with every delicate secret pertaining to the health of the family.

In view of the well authenticated corruption of the Roman Empire, a state of affairs permeating every stratum of society, from royal circles down to the most humble grades, it is almost inconceivable that the immorality of the period was not marked by widespread venereal infection, and it must ever remain an inexplicable mystery why the early Roman and Greek literature contains such a paucity of references to venereal diseases. This is a feature which adds so much to the difficulty of tracing the origin of syphilis farther back than the days of the early Columbian voyages.—Urologic Review.

CREEPING INFANTS may gather wood splinters or needles in their hands or knees, and abscesses in those localities should suggest such an etiology.—Amer. Jour. Surg.

THE PENALTY OF CONSCIENTIOUS YET DECEITFUL SURGERY.—To speak of the same surgical procedure as being conscientious and yet deceitful, seems a precarious juggling of ideas, but the application we make of the expression, in the light of the incidents of the case we shall relate, is entirely with license. Aside from this phase, however, it teaches a moral which every surgeon should give due heed to and thereby gain profit.

A patient with undescended testicles consulted a French surgeon in search of relief from his unusual condition. The fact that he was a victim of cryptorchidism did not bear upon his sexual capacity, nor did he complain of the least discomfort. He did rail, however, at his unusual fate, and demanded such surgical relief as would provide him with the palpable testicular appendages of man. The surgeon, to whom he applied, operated with the hope and expectancy of adding to his evidences of physical masculinity by bringing down the wrongly placed testes, but soon found that these important organs were intraperitoneally situated. He concluded that a further search was not warranted in view of its dangers and compromised with the unconscious patient in this trying situation, by substituting a pair of false testicles for the real ones, which his explorations had failed to disclose. The exact result of the operation was not revealed to the patient. The latter duly recovered, fondled the unfamiliar adornments with affectionate pride and all was well. However, later in an ill chosen moment the patient was guilty of indiscreet assignation, from which resulted an infirmity whose cruellest effect was to



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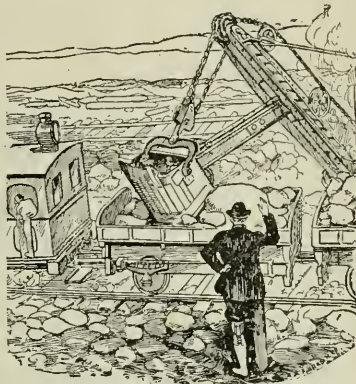
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make plain to the man that he had been lavishing fond pride upon a false pair of testicles.

Wild with rage at the deception practiced upon him, the patient sued the surgeon, whose defense that his desire to remedy rather than increase the patient's growing neurasthenia was sufficient ground for failing to confess the failure of his surgical procedure, all of which was in the patient's interest, convinced the trial judge of the honesty of his purpose, and accordingly a verdict in the defendant's favor was handed down. An appeal to a higher court resulted in a confirmation of the original opinion.

The case is rather interesting and whilst few of our readers will ever be principals in a parallel one, yet it teaches a moral, which is that oft-times it is better to acknowledge defeat than to practice deception though such be done solely for the deceived patient's good.—Amer. Jour. Derm.

SCRUTINIZE CAREFULLY EVERY "FISTULA" near the anus; a skin-lined sinus in the median line, in front of or behind the anus, is congenital and usually leads to a small dermoid.—Amer. Jour. Surg.

A TROUBLESOME "EROSION" of the cervix may disappear without any other treatment than the replacement by pessary of a coexistent retroflexion.—Amer. Jour. Surg.

UTERINE CURETTAGE has its chief indications in incomplete abortion, metrorrhagia as from submucous fibroids, inoperable carcinoma, etc. Its indiscriminate employment in chronic endometritis is to be condemned.—Amer. Jour. Surg.

IT HAS BEEN DECLARED that for a time the skin can vicariously take care of the usual function of the kidneys.—Urologic Review.

DO NOT MAKE A DEFINITE DIAGNOSIS of prostatic hypertrophy without expert cystoscopic confirmation.—Urologic Review.

THE HYPERSUSCEPTIBILITY OF CHILDREN TO OPIUM.—The hypersusceptibility of children to opium is one of the most potent reasons for employing a substitute in its place in the treatment of diseases of children. It has been found that Papine (Battle) is well borne by children to whom opium or morphine was intolerable, but when it is remembered that in the manufacture of Papine through a special process, the narcotic and convulsive elements of opium have been eliminated, the reason for this point of Papine's superiority over opium, will be well understood.

Papine (Battle), as is well known, is a product of opium subjected to a process which while retaining the analgesic and sedative properties of the drug, separates from it its objectionable qualities, leaving the finished product of more than ordinary worth as an opiate for use in children.—Battle & Co., St. Louis, Mo.

THE MOST ESSENTIAL POINT in renal tuberculosis is, without a shadow of doubt, early diagnosis.—Urologic Review.

BY THE TIME secondary manifestations have appeared a positive Wassermann may be secured in nearly 100 per cent. of untreated cases.—Urologic Review.

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VINCENT'S ANGINA

By Leo Green, A.B., D.M.D., of New York

THIS is a brief report of my observations on Noma or Cancrum Oris (Gangrenous Stomatitis) for the past ten or twelve years and the successful treatment of oral manifestations of Vincent's Angina for nearly three years.

About ten or twelve years ago I started to observe noma, which is a gangrenous stomatis occurring usually in institution children or in those from poor surroundings, and found during the convalescent stages or immediately after convalescence from measles, scarlet fever, whooping-cough and diphtheria and in frequency in the order named. At the time I started these observations the mortality in noma was estimated by Holt at 75 per cent., and by others even higher (I think the latter estimate is nearer the correct one). In those days, at the Nursery and Child's Hospital, of which I was a member of the attending staff, I did not see the patients until the disease had advanced very far. Little attention was given to the oral disturbance until the ravages of an advancing noma were evident. The usual surgical procedure of removal of soft tissue and dead bone brought recovery in few cases. Constant irrigations of potassium permanganate and sodium hyposulphite alternately, and careful nursing and feeding were of material assistance. But at best the progress was unsatisfactory, and I refrained from publishing my results because of my uncertain knowledge of the disease.

About six years ago I began to study the children at the Foundling Hospital during

the active stages of and convalescence from the four diseases above mentioned. It occurred to me that the Vincent's Angina observed in their mouths was the starting point of Cancrum oris, and if this could be arrested, the origin of this destructive disease was found. My observations since then have proven this theory to be correct. Cancrum oris is an aggravated Vincent's Angina, neglected at its inception.

I tried without effect irrigations of permanganate, bichloride, and in fact most of the known antiseptic washes, and then discarded the various caustics by process of elimination (including the various silver salts), until I began to get results with trichloroacetic acid. Trichloroacetic acid belongs to a group of three acids (monochloroacetic and dichloroacetic are the other two), the difference in their composition being due to the relative amounts of chlorine they contain. It is made by the oxidation of chloral hydrate by nitric acid, and occurs as irregular, colorless crystals.

I started using a 20 per cent. solution of Merck's preparation (I started with this preparation and have always found it very satisfactory), but have since found that acid in the full strength gives me the best results.

The caustic is applied to a freshly cleansed surface; to avoid extensive cauterization, the tissues are painted with melted vaselin or cacao butter, leaving only the infected area exposed. To lessen the pain of the cauterization, I drop a few crystals in six or eight drops of a 4 per cent. solution of novocaine, and the results are satisfactory judging by the absence of pain. In addition to the cauterization, which is repeated every second or third day as needed, the mouths are irrigated with a $\frac{1}{2}$ per cent. so-

lution of formaldehyde, or if the odor is very bad (there is a characteristic odor in all advanced cases) we alternate with irrigations of potassium permanganate.

Vincent's Angina appears first as a gray ulcerative area at the gum festoons of the incisor or molar teeth, or both, and on the inner side of the cheek, usually around the orifice of the parotid duct. It may also appear on the hard and soft palate, on the tongue, tonsils, and sublingual glands. In the early stages there is also evidence of bleeding and pain on the slightest touch. A smear stained will show the presence of the germ under the microscope. These cases taken early will clear up in three to five days. If allowed to develop, pockets will appear between the teeth with evidence of dead alveolus, and large ulcerative patches appear on the gums, lips, and cheeks. In the more advanced stages we have extensive necrotic areas of bone, a black gangrene of the soft tissues, and perforation of the cheeks.

At this time of writing I have two isolated wards at the hospital. In one, established six days ago, there are seven cases; four were entirely free in four days, two on the sixth day, and the seventh will be discharged on the eighth day. In the other ward of eight cases, established eight days ago, one died on the third day of a double pneumonia. This case was hopeless when I first saw it. Case number two has a double mastoiditis and a partial facial paralysis. The angina extended all over the mouth and the soft palate. This child will probably get well within a week so far as the Vincent's Angina is concerned, although the resistance was very much lowered. Of the remaining cases all will be discharged in twenty-four hours, except one child with a whooping-cough; the mouth will probably clean up within the next three days. In each case we have a delicate child to deal with, owing to its recent recovery from contagious illness. As to diet, all those without temperature had a reasonable variety, the others only liquids.

In another ward one child has infected its clitoris and another its rectum. I have since had the arms of all of them bound to prevent further mischief. Both of these cases will be discharged within ten days. The treatment in each is the same as the oral cases. Infections of the middle ear respond in the same way.

IT HAS BEEN FOUND in some instances that morphine exerts an influence on renal excretion. Thus in a case of uremia morphine was employed with marked results, renal activity being restored.—Urologic Review.

THE ETIOLOGY AND TREATMENT OF CYSTITIS IN WOMEN*

By F. Webb Griffith, A. M., M. D., of Asheville, N. C.

THE term cystitis has been used to designate every pathological condition of the bladder from mere hyperemia to carcinoma. So many of the pelvic disorders have as a symptom bladder disturbance that we are prone to overlook the underlying cause and treat the bladder symptomatically.

I shall discuss only a few of the gynecologic diseases which may give rise to symptoms resembling more or less closely cystitis.

First, pelvic inflammatory disease. By pelvic inflammatory disease I mean that clinical picture which we so frequently see when there is inflammation of the pelvic organs, varying from a slight salpingitis to an inflammatory mass matting together all the pelvic viscera. It is no wonder that bladder disturbance occurs in most of such cases, for when we consider how extensive are the perivesical adhesions it is a wonder we do not get it in every case.

Usually the symptoms are due to a mechanical action upon the bladder and a perivesical inflammation, but in some cases, as I shall show later, the same organism can be isolated from the bladder and the inflammatory mass.

Malposition of the uterus, fibroids, ovarian and parovarian cysts, pregnancy and relaxation of the vaginal outlet are mentioned as causes of bladder disturbance due to mechanical means.

The vermiform appendix adherent to the bladder is occasionally the cause of obscure symptoms. So also an extension anteriorly of an advancing carcinoma of the cervix. The symptoms arising from these conditions resemble cystitis only in a vague sort of way and a most cursory examination should reveal the underlying cause. When we have a patient complaining of symptoms referable to the bladder a thorough abdominal and pelvic examination should be made to exclude extra-vesical causes. Then the ordinary examination of the urine should be made. If that shows pus and albumen, a catheterized specimen should be obtained to be sure there is no contamination with the vaginal discharge. If there be neither pus nor albumen in the urine, the physician is justifiable in treating the patient symptomatically for a short time. If, however, there be pus in the catheterized urine a thorough cystoscopic examination is demanded. If the symptoms be very acute

*Read before the Southern Med. Assn. Southern Med Jour., July, 1913.

it may be wise to wait a few days; however, instrumentation during the acute stage of a urethritis or cystitis is not so greatly contra-indicated in women as in men. True cystitis is practically always of bacterial origin. An inflammation of the bladder due to mechanical or chemical agents does occur, but it is by far the exception and as a working basis may be practically disregarded.

Trauma, hyperacid urine, or anything else which might cause hyperemia, are predisposing causes, but the exciting cause is the infection. Any pyogenic bacteria may be the cause of a cystitis, but as a matter of fact we know that over 90 per cent of the cases are due to six or eight organisms. On the other hand, we know that frequently there is a bacteriuria without cystitis, and only after a predisposing cause has paved the way does infection take place.

A fairly large experience in charge of the gynecological bacteriology at the Johns Hopkins Hospital showed that the organisms most frequently found are *B. coli* communis, the various staphylococci, gonococcus, tubercle bacillus, streptococcus, proteus vulgaris, and *B. lactis aerogenes*. I have never been fortunate enough to find *B. pyocyaneus*, *B. typhosus* or the pneumococcus as described by some writers. As the gonococcus and the tubercle bacillus will not grow on the ordinary media they are frequently overlooked. If, however, blood-serum, hydrocele agar, Dorsett's egg media or some other suitable material be used, many of the negative cases will be cleared up.

Unfortunately the tubercular cystitis has grafted upon it a secondary infection which renders cultural growth of it almost impossible. If, however, the urine be first treated with antiformin long enough to kill the secondary organisms and then cultures made upon proper media, the bacillus can occasionally be grown. The use of antiformin is also of value in killing off the secondary organisms before animal inoculation for suspected tuberculosis. By that means the animal is not killed by the secondary organisms and the tubercle bacillus has a chance to act. The *B. lactis aerogenes* I have found twice. This organism is claimed by some to be a very rare cause of cystitis. Because of its close resemblance to the colon bacillus I believe it is frequently confused and diagnosed as a colon infection. As a matter of fact we are not sure that this organism is not a form of the colon bacillus. However, it has some characteristics which differentiate it from the typical colon bacillus, the most prominent of which is the

peculiar lemon-yellow growth upon potato with little bubbles of gas. Of the proteus group the only one I have gotten has been the vulgaris of Hauser.

Before leaving the question of etiology I wish to discuss briefly post-operative cystitis. Following pelvic operations many patients have symptoms resembling cystitis. In the great majority of cases this is not a true cystitis. Urinalysis will show no pus, at the most a few leucocytes. Cystoscopy reveals only mild hyperemia. If the woman is catheterized repeatedly by one who is careless about the details of asepsis, of course she runs great risk of infection, but that can hardly be charged against the operation.

Most pelvic operations influence the bladder more or less. A round ligament suspension of the uterus draws it higher up in the abdomen. Covering over the amputated cervix with peritoneum frequently puts the bladder on undue tension. Panhysterectomy necessitates trauma of the bladder in separating it from the cervix. These will of themselves cause manifold bladder symptoms and also are the predisposing causes of a true cystitis. For that reason during operation the bladder should be submitted to as little insult as possible.

Sometime ago in order to collect data on post-operative cystitis, I took routine bladder cultures from the gynecological patients at the Johns Hopkins Hospital just before operation. The technic was as follows: The perineum was shaved and scrubbed with green soap and water and then with bichloride. Then with a sterile gauze on a sterile clamp the vagina and external urethral orifice were cleansed with green soap, bichloride and alcohol. A small glass catheter was introduced and after the first portion of urine had run off specimens were collected into tubes of media. There is a possibility that organisms may be carried from the urethra into the bladder by the catheter and thus contaminate a sterile urine. So that were I to do the experiments over again I would have two catheters made, one small enough to pass through the other. The larger could be inserted almost to the internal urethral orifice and the smaller then passed through it into the bladder. In this manner the danger of contaminating the cultures from the urethra would be reduced to a minimum. The result of our investigation was as follows: In the great majority of cases when the patient complained of post-operative vesical symptoms, there were no organisms found either before or after the operation and microscopic examination of the urine showed no pus. In other

words, they were not true cystitis. In some instances we found bacteria either before or after operation where there were no symptoms of cystitis, as example, Miss L. C. (white). On admission there were no urinary symptoms. In fact, patient stated that she could go forty-eight hours without urinating. The operation was left salpingo-oophorectomy and right salpingectomy for chronic pelvic inflammatory disease. Examination before and after operation showed no pus or albumen. Routine cultures from bladder just before operation showed *B. coli communis*. Such cases may be a contamination from the urethra or else a true bacteriuria.

It was very unusual to get a true cystitis following operation when the cultures were negative before operation. Now and then we isolated the same organism from the bladder and from the inflammatory mass for which we were operating, as example, N. H. (colored). On admission complained of slight pain and burning on micturition. Urine before operation contained moderate pus, few red blood cells, no casts. The operation was incision and drainage of a pelvic abscess through the vagina. Routine cultures from the bladder taken a few minutes before the operation showed *staphylococcus aureus*. Cultures from the pelvic abscess showed the same organism. The patient also had a pyometra, but it was considered wiser to wait two weeks longer before doing a hysterectomy.

I believe that in a fairly large proportion of cases diagnosed post-operative cystitis, the cystitis really antedates the operation and the worst that can be said against the operation in such cases is that it flares up a latent inflammation.

Paradoxical as it may seem, the treatment of a cystitis should in many cases precede the cystitis, in other words, prevention. If we maintain the same respect for the bladder that we do for the abdominal cavity, our cases of cystitis will be far fewer. Even with every precaution, we will once in a while get a cystitis for which we are responsible. How much more frequently they will occur when we become lax in our asepsis. To diagnose gastric ulcer, typhoid fever, appendicitis and other inflammatory conditions of the gastro-intestinal tract under the one term gastro-enteritis and treat each with the same stock remedy would be irrational to say the least. Yet that is pretty nearly what we are doing with our cases of cystitis. The urologist has at his disposal means of exact diagnosis which are more precise than those of

the gastro-enterologist, and we should make use of them.

Thus our cases should be designated as tubercular cystitis, colon cystitis or *staphylococcus* cystitis as the case may be, and not merely the vague term cystitis.

When we have made an accurate diagnosis we are a long ways toward successful treatment. The mild cases will usually clear up with plenty of water and some alkaline diuretic, such as potassium citrate and hyoscyamus or belladonna. With that it is well to give also hexamethylenamine from 15 to 40 grains daily. Absolute rest in bed with the bowels kept moderately loose will hasten recovery. Hot vaginal douches during the acute stage are often comforting. If the dysuria and increased frequency are so marked as to interfere with sleep, sedatives should be given freely. As the acute symptoms subside, irrigations and instillations are valuable. The drugs recommended for this purpose are numerous. Personally I like an irrigation of $\frac{1}{2}$ saturated solution of boric acid (2 per cent) twice a day, with semi-weekly irrigations of silver nitrate 1:5000, gradually increasing in strength. For the instillations protargol 2 per cent or argyrol 10 per cent work nicely. When there are isolated areas of inflammation, direct topical application through the air cystoscope is valuable.

The condition known as cystitis colli is really a mild inflammation about the internal urethral orifice and trigonum, and is probably of gonorrheal origin. While the symptoms are not very severe, they are persistent and annoying. Cystoscopic examination in these cases show very little, for the hyperemia caused by the trouble is often no greater than that caused by the slight irritation of the cystoscope.

It must also be remembered that the trigonum is normally more injected than the rest of the bladder. Direct application of 10 per cent silver nitrate solution once or twice a week are valuable and should be followed up by alkaline diuretics.

Occasionally the severe cases of non-tubercular cystitis will require the formation of a vesico-vaginal fistula with continuous irrigations for several hours daily in a tub of warm water before relief is obtained. In conclusion, just a word about tuberculosis of the bladder. To diagnose and treat vesical tuberculosis without further investigation is criminal, for tuberculosis of the bladder in women is almost *prima facie* evidence of tuberculosis of the kidney.

After the renal infection has been properly treated, the bladder will tend to clear up. Irrigations of bichloride 1:5000 or in-

stillations of 1:500 and stronger, silver nitrate in weak solutions or 10 per cent iodoform emulsion in glycerin are helpful. Excision of ulcers or even curettage of the bladder is advisable in some cases. To these local measures should be added climatic, hygienic and dietetic treatment. If we will give our cases of genito-urinary tuberculosis the advantages where they can be out of doors most of the time, sleep out at night if necessary, regulated exercise and proper attention to diet, we can change the hopeless prognosis which we formerly gave to one of encouragement. The internists are doing wonders for early pulmonary tuberculosis, and we as surgeons should profit from them and give our cases of surgical tuberculosis the benefit of the same methods.

THE DIAGNOSIS AND TREATMENT OF ECLAMPSIA*

By Geo. W. Kosmak, M.D.

Diagnosis.—In a disease of such varied etiological and clinical features the diagnosis must necessarily be made with caution and exactitude. We are very apt to concentrate our attention on the occurrence of a convulsive seizure as the principal sign in formulating a diagnosis of this unfortunate complication of pregnancy. It would be much better for us to acquire a definite knowledge and understanding of the toxemias of pregnancy as clinical entities and then to treat the patient rather than the disease. We have learned to do this in other conditions such as pneumonia, nephritis, heart disease, etc., and there seems to be no valid reason why we should not do the same for this complication of pregnancy which we popularly call eclampsia. It would undoubtedly be an advantage to drop the latter entirely as we would then be led to a more certain diagnosis of the toxemia of pregnancy from other impending signs and symptoms.

As the prophylaxis of this disease, like that of a great many others is of such signal importance, it becomes necessary to recognize those special features which usher in the prodromal stages. These symptoms are usually characterized by disturbances that may be slight enough to be interpreted by the patient as of a digestive origin or again they are simply described under the general caption of "not feeling well." Headaches, slight nausea, dizziness and visual disturbances which come on at any period during the last two months of preg-

nancy should be looked upon as danger signs and every patient warned by her physician, what the significance of these symptoms is. Proper treatment immediately instituted will usually result in cutting short the trouble, but we must not be satisfied to rest in any case where these disturbances have once been present, as a recurrence is very likely. Unfortunately we do not as a rule meet with the disease until it has advanced beyond the bounds where these are noted. Usually a convulsive seizure or state of coma constitutes the symptom complex in which we ordinarily see the patient. When this occurs during pregnancy it can ordinarily be interpreted as due to the presence of a toxic state rather than anything else. Yet we must consider at the same time convulsions due to other causes, including epilepsy, cerebral irritation due to tumors or inflammatory states, or the presence of a uremia. The former two need not concern us particularly as their recognition is comparatively easy from a previous history of the case. As regards uremia we may be in doubt, however, as far as the treatment is concerned; it would be the same in both cases except that in the presence of a uremia we ought to pay less attention to delivery than in eclampsia. As a matter of fact if we are called to a patient in pregnancy or labor who presents a convulsive seizure, particularly if without any previous warnings, it may be assumed that we are dealing with a convulsion that is due to the presence of a toxemia of pregnancy. In many cases the diagnosis may be confirmed by boiling the urine or treating it with nitric acid, when the well marked reaction for albumin will serve to indicate the presence of a true "eclampsia." Although this is not an infallible sign it will serve in most instances to differentiate the condition from convulsions due to hysteria, epilepsy, etc. Under the circumstances in which we see the case a more refined urinalysis is of course impossible, but we must not forget that the albumin does not appear in some of these cases until a considerable time after the convulsion. Another class of cases to which we must pay particular attention is that in which a toxemia is present without convulsions. This is a group to which increasing attention is now given and which often constitutes one of the most serious varieties of the condition with which we have to deal.

The pathological lesions are precisely the same as in those women who present severe and extensive convulsions. The diagnosis here is often a difficult one to

*American Medicine, July, 1913.

make, although on inquiry we are usually favored with a recital of certain prodromal symptoms including headache, dizziness, visual disturbances and general malaise.

Treatment.—The treatment of eclampsia must be divided according to the phase of the condition which may happen to present itself in the individual patient. We will consider first the handling of those cases which are marked by a convulsive seizure, as this is the type which we meet with most frequently and which in the eyes of both the laity and the profession demand immediate and radical consideration. As we are not yet entirely clear as to the exact etiological factors which underlie these toxemias it is not to be wondered at that a great deal of divergence of opinion exists as to the proper treatment of the disease. Thus we meet with the most extreme views on both the conservative and the radical sides of the question. One class of obstetricians favors immediate delivery by the most radical operative measures and the other side advocates sedative and eliminatory treatment as the sole necessity. Good results seem to have attended both methods of treatment as shown by the statistics adduced by each. There is one point in the treatment of this type of eclampsia which cannot be gainsaid and that is that every patient who presents a convulsive seizure should be sent to a hospital for further treatment whenever this is possible. In view of the extended facilities offered by maternity services in our larger cities this can usually be carried out, but as the fatal issue may come on very rapidly, something should be done by the physician who may be called in to tide the patient over until her removal can be accomplished. My personal experience and views lead me to believe that immediate delivery by radical measures is not invariably necessary and that much can be done by other means at our command to relieve the patient.

Eliminative and sedative measures can be applied as a general thing in every household. As the routine treatment in a case of a toxemia of pregnancy in the later months accompanied by convulsions, I would suggest the immediate injection of a quarter of a grain of morphine before anything else is done. We know that the liability to convulsions from even slight external irritations is marked in these patients and by putting them immediately in a condition of enforced quiet we can proceed with the other necessary measures without unduly arousing them. After the morphine has begun to exert its effects, the patient's clothing should be removed

and certain eliminatory measures proceeded with. These include the administration of cathartics and enemas together with the abstraction of a certain quantity of blood in suitable cases. I want to extend a warning on this point against the indiscriminate use of chloroform in eclamptic convulsions although the dangerous effects of this drug have now become so generally recognized that this warning may seem superfluous. There is no doubt that a great many deaths have occurred as the result of late chloroform poisoning in such instances. A soapsuds enema repeated if necessary until an evacuation of the bowels has occurred is one of the first things to be done, followed by the administration of a concentrated saline cathartic where the patient can swallow or the application of a drop of croton oil to the back of the tongue. Personally I do not favor the latter as the oil cannot always be readily procured and its administration is always accompanied by some difficulty. Elimination from the skin is favored by wrapping the patient in a blanket wrung out in hot water and keeping her in the same until perspiration has become free. These packs may be repeated at intervals of every two or three hours as the case demands. If the proper indications are present at least 500 Cc. of blood may be abstracted from a vein in the arm and to this loss of blood if it occurs during the course of an operative delivery may, I think, be ascribed in large part the good results of the latter. Dilution of the blood stream may be accomplished by colonic irrigations with normal sugar solution when this is possible and if done, not less than four gallons at a temperature of 115 degrees should be employed for this purpose. The irrigation may follow or precede hot pack and is usually accomplished without difficulty, as the necessary apparatus can ordinarily be had in the average household or secured from the nearest druggist. Irrigations should not be administered where considerable edema is present as it is not advisable to introduce any more fluid until what is already there has been taken care of. So that in such cases this measure may be delayed until after free perspiration has been secured by means of a hot pack. After the irrigation has been completed, from thirty to forty grains of chloral dissolved in water may be administered by rectum. But if the patient can swallow, fifteen to twenty grains may be given by mouth. Washing out the stomach in these patients may be resorted to if the physician is sufficiently skilled but will not always be found a simple matter in

the semi-conscious condition in which we find most of these patients. At some time during these procedures a vaginal examination should be carefully made and the condition of the cervix determined. As a general thing an eclamptic attack comes on between the seventh and ninth month and evidence of labor is often absent but as the latter process is one of the natural results of eclampsia, efforts directed to the induction of the same are often surprisingly successful if the cervix is soft and dilated beyond two fingers, the membranes ruptured, full dilation secured and the child extracted by version. This relief from intra-abdominal tension seems to reduce the tendency to convulsion in many cases, but we are rarely fortunate enough to meet with a cervix in which dilatation is possible without a more extended procedure. I believe, however, that in many instances we can safely resort to gradual dilatation by the Harris method even if this takes an hour or more, in those cases where we cannot send the patient to a hospital and are compelled to rely on our own resources. If the convulsions are controlled and the elimination is taken care of there is no reason why an hour or more should not be taken to properly dilate the cervix and complete delivery by forceps or version as conditions may indicate. Vaginal Caesarean section has been advised as a rapid means of delivery in such cases but I cannot be made to believe that this procedure should be conducted outside of the hospital and by any but those skilled in the operation as the procedure is not as simple as we are led to believe by its enthusiastic advocates. Where the case is one of milder degree and under control, dilatation of the cervix may sometimes be secured by the insertion of rubber bags.

The high tension pulse which we usually meet with in these women is ordinarily regarded as a symptom which requires energetic treatment and veratrum viride and nitroglycerin are the drugs most commonly advocated for this purpose. The former has been so generally used in this country that many consider it an absolute necessity. But careful observation of its effects has shown that its use is accompanied by some danger, as the depressing effects on the pulse are cumulative and cannot be controlled. Nitroglycerin on the other hand is much more evanescent in its effects and may be given quite safely in doses of one-fiftieth of a grain every twenty to thirty minutes until the pulse tension begins to diminish, when it may be employed at longer intervals. Attention may be called

to the fact that the diaphoretic and diuretic measures previously referred to will do much as aids in reducing the arterial tension and this is likewise effected by the sedative drugs already advised. Regarding the radical operative treatment in such cases it seems that in view of the excellent results which have resulted from purely conservative or a combination of conservative with operative measures, that we should be less inclined to depend entirely on methods which are more or less strictly surgical in character. I refer particularly to the tendency to deliver women presenting convulsive seizures by vaginal or abdominal Caesarean section in the absence of other indications. In cases at or near term with an elongated cervix, a large fetal head which does not manifest any tendency to engagement, then an abdominal Caesarean section seems to me to offer a better chance for the mother and child than any other method of radical treatment. In a case at the seventh month, however, which has been accepted by many as the proper indication for vaginal Caesarean section, I believe that we should proceed more cautiously as it is not essential at this time to extend the same consideration to the value of the child's life as later on. Even if successfully delivered such children frequently are seized with convulsions during the first few days' post-partum, or are so asphyxiated that they do not survive their delivery more than a few hours. The desire to get rid of the fetus and placenta at any cost is hardly a rational method of procedure, as the toxins of the disease whatever their nature, are already circulating in the blood and tissues and will continue to circulate for some time after the delivery.

Since the toxemias of pregnancy are better understood we have become aware that they may exist and go on to a fatal issue without the presence of convulsions and it is therefore opportune to refer at this point to the treatment of such cases. These women may or may not have prodromal symptoms but often pass directly into the condition of deep coma which resembles closely that associated with an ordinary uremia and which, if it ends fatally, will be found accompanied by the same pathological lesions met with in the classical cases that present convulsions. The treatment of eclampsia without convulsions is practically the same as that of the other variety and we must exercise just as great caution in such cases as in those which are apparently of a much severer type.

I have not made any reference to the prophylactic treatment of the toxemias of

pregnancy although this is a subject of equally great importance as that which we have under discussion, but I merely want to call attention to the necessity of observing these prodromal symptoms in pregnant women with a greater degree of care. We should warn our patients that the appearance of headaches, visual disturbances, nausea, malaise and similar manifestations of a toxemic state, are to be immediately reported to their physician who can then in most instances inaugurate a scheme of diet and medication which will relieve them and carry them to term. Cases of impending or actual eclampsia should be sent to the hospital, if possible, as the method of treatment which I have outlined can be accomplished with better results under such circumstances. The preliminary measures which I have referred to may, however, be instituted in every case and will often be sufficient to turn the balance in favor of our patient even if it is decided to send her to a hospital for further treatment. Not every case of eclampsia needs an immediate radical operative delivery, but there is no condition of pregnancy in which expert advice and assistance is more needed than in these women.

In conclusion I want to call attention again to the necessity for a proper acquaintance with all the manifestation of a toxemia of pregnancy and for a plea that we consider the disease as such, which means that not one symptom should dictate our method of treatment, but that the patient should be judged and handled as an individual. Convulsions are by no means the only symptom although their general prevalence has really served to give the disease its name. Convulsions are but a single manifestation and do not require any special treatment. Best results have been obtained by men who are ready to resort to any or all the various procedures, both prophylactic and curative, which the individual case may demand. Although we are not yet clear as to the precise etiological factors underlying the condition, sufficient advance has been made to allow us to give a much more favorable prognosis in the individual cases than formerly.

SUMMARY.

1. The diagnosis of the toxemias of pregnancy should be made with certainty in every case, especially in the presence of convulsions.

2. The treatment of this complication of pregnancy should be governed by the signs and symptoms presented by the individual

patient. Thus far no specific therapeutic measure has been found.

3. When labor is imminent, especially at term, it may be completed by rupture of the membranes, manual dilatation of the cervix, version, or forceps, unless some indication is present for a more radical operative delivery. If the patient is not in labor or if she is not further than seven or eight months along in her pregnancy, conservative, mainly sedative and eliminatory measures, should always be instituted before resorting to any radical operative procedures.

4. The presence of a single convulsion should never be accepted as the criterion for radical surgical interference.

23 East Ninety-third Street.

OBSERVATIONS AND SUGGESTIONS REGARDING LOBAR PNEUMONIA*

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DURING the three months ending April 1, 1913, the writer treated in two hospitals twenty-nine cases of lobar pneumonia; these cases form a continuous series, being all of the cases of that disease treated by him in that period in those hospitals. The ages of these patients were respectively: 3, 3, 3, 6, 6, 9, 10, 10, 19, 21, 21, 22, 22, 23, 26, 30, 30, 30, 34, 34, 35, 36, 38, 38, 40, 41, 44, 52 and 57 years. The lobes affected were as follows: In thirteen cases the left lower lobe; in seven the right lower lobe; in two, the right upper lobe; in one, the left upper lobe; in one, the right middle lobe; in three, both lower lobes, and in two, both left lobes.

The temperature in five cases rose to 105° F. or higher; in eleven to between 104° F. and 105° F.; in ten, to between 103° F. and 104° F., and in three it did not rise above 103° F. The pulse rate in three cases rose to 160 or more; in four, to between 150 and 160; in three, to between 140 and 150; in six, to between 130 and 140; in nine, to between 120 and 130, and in four it did not rise above 120. The respiration rate rose in five cases to between 60 and 70; in five, to between 50 and 60; in thirteen, to between 40 and 50, and in six it did not rise above 40.

Defervescence took place in sixteen cases by lysis, and in nine by crisis. The average time of defervescence in the cases which showed lysis was 7.7 days from the be-

*Read before the Kings County Medical Society. Med. Record, Aug. 2, 1913.

ginning of the disease, and in those which showed crises, 8.2 days, the variations being between four and fourteen days. There was delayed resolution in four cases, with reinfection in two. In two cases empyema developed. In two cases there was pleurisy with effusion. In one case pericarditis with effusion was present. Two cases developed following an operation for appendicitis, one developed during convalescence from typhoid fever, and one during convalescence from rheumatic fever.

In this series of twenty-nine consecutive cases of lobar pneumonia only one death occurred. The patient who died was a boy of nine years, who defervesced by lysis on the seventh day, and died suddenly the following day, from what cause the writer was not able to discover.

The cases above reported are, of course, too few in number to form a basis on which to build conclusions, and the writer has not presented them for that purpose, but for the purpose of providing a text, a suggestive text, for a few topical remarks on the subject of lobar pneumonia.

The Toxemias of Pneumonia.—The toxins which most commonly make trouble in pneumonia can be divided into three classes: the specific toxin; autotoxins; including those manufactured in the alimentary tract; and pharmaceutical toxins. The specific toxin which is derived from the pneumococcus in the blood does not seem to be regularly a factor of grave pathological importance, though occasionally it may be so. It is an endotoxin, and apparently does not get into the blood stream in dangerous quantity if the leucocytes are active in the performance of their protective function. It is not regularly and habitually a serious disturber of the circulation in the sense that the toxin of diphtheria is such. In a certain proportion of cases, however, the disease does seem to overwhelm the patient, and that sometimes early in its course, in a manner which suggests the presence of a severe specific toxemia. The writer has seen a few such cases. But in none of the series above reported, though high fever and rapid pulse, and even delirium, were unusually prevalent, did vasomotor paralysis appear as a cause of cardiac failure; the circulatory disturbances which were observed could all be accounted for by the mechanical conditions present and by the state of the myocardium.

The autotoxins, we can readily believe, are of many kinds. The disturbances of the physiology caused by the conditions of the disease, both those due to the invasion of the pathogenic micro-organism, which intro-

duces into the blood foreign protein and makes a sudden and great demand on the body for biological and biochemical protection, and those caused by a mechanical disturbance of the circulation, may justly be suspected of bringing about perversions of the internal secretions and of metabolism, with resulting changes in the regular or habitual toxic and antitoxic conditions in the blood stream and in the glands and tissues. And it can also readily be believed that the same disturbances lessen the natural resistance of the body to the toxic products of bacterial activity in the digestive tract, and also that they favor the production of such toxic products. The writer is of the opinion that the autotoxins, and particularly the toxins of intestinal origin, constitute a very important element in the mixed toxemia of pneumonia.

The pharmaceutical toxins are, of course, drugs given to the patient. Most of our drugs are poisons. The pharmacopeal alkaloids, drugs belonging to the coal tar, carbolic acid and salicylic acid groups, mercury and magnesium sulphate, all of which are widely used in pneumonia, are familiar poisons, and even dangerous ones unless used with caution. In view of the wide diversity of opinion which obtains in the medical profession regarding the drug treatment of pneumonia, and the necessarily unripe clinical experience of a considerable proportion of those who treat cases of this disease, and, we may add, the therapeutic prejudices which are so easily and so naturally acquired and from which it is so difficult for any of us to be entirely free, we are bound to include among the toxemias which may be found in pneumonia, drug toxemias.

Of these three classes of toxins, the first, the specific toxin, is, in the present state of our knowledge, beyond our direct control; we can influence it favorably only by supporting the natural resistance of the body, and particularly by improving the hygiene and nutrition of our faithful janissaries, the leucocytes. Of the autotoxins, those formed in the alimentary canal are very largely under our control. It is possible by regulation of the diet to greatly reduce the amount of injurious bacterial activity in the alimentary tract. The third class, the pharmaceutical toxins, are entirely under our control. The proper exercise of that control, however, is not always easy, for some of these pharmaceutical toxins we know can often be used with advantage to the patient. But when we put a drug with toxic possibilities into a patient suffering from such a grave disease as lobar pneu-

monia, in which a very small thing may be sufficient to turn the scale, we should be reasonably sure that the advantage will be greater than the injury; and when there is any doubt we should give the patient the benefit.

The Blood Pressure in Pneumonia.—H. A. Hare in the 1912 edition of his "Practical Therapeutics," says, "Gibson in Edinburgh, and myself in this country, have shown that danger arises when the pulse rate per minute is equal to or above the blood pressure expressed in millimeters of mercury. Thus, if the pulse rate is 90 and the blood pressure 140, all is well, but if the pulse rate is 110 and the blood pressure 110 the patient is gravely ill, and needs active cardiac and vascular stimulation. If the blood pressure in millimeters of mercury falls below the pulse rate the condition is desperate."

The writer's experience does not support these conclusions of Gibson and Hare. In seventeen of the twenty-nine cases above reported, the blood pressure was taken by a sphygmomanometer, along with the temperature and pulse rates, and in fifteen of the seventeen it fell below the pulse rate, yet all recovered, and in eight more the blood pressure could easily be appreciated by the finger to have fallen below the pulse rate, yet all recovered. The writer is of the opinion that the systemic blood pressure in pneumonia differs very little from the normal for the individual, as a rule, and that when it does fall this usually happens as a result of the mechanical failure of the overworked heart, and that the collapse of the circulation through specific-toxemic vasomotor paralysis, of which so much has been said of late, does not regularly belong to the disease, being an occasional occurrence and not always clearly distinguishable from collapse of the circulation due to myocardial failure. The terminal collapse of the circulation in fatal cases may not differ essentially from what happens at the end of a losing fight by a patient with any fatal cardiac disease, except that the specific toxemia is added to other habitual toxemias which are present in excess on account of the general circulatory stasis.

The Hygiene of Pneumonia.—The most important point in the hygiene of pneumonia, next to keeping the patient in bed, is to supply him with plenty of cold, fresh air. The writer will not discuss this generally accepted proposition, but he wishes to emphasize a germane point which he believes is not sufficiently regarded, viz., the necessity for protecting the patient from cold and drafts after defervescence. While

his fever endures the patient can come to no harm from exposure to cold air, in fact, is benefited by it; but after his fever has gone, and he lies weak, possibly perspiring, a reinfection of the lung or an attack of pleurisy can be induced by such exposure.

The Diet in Pneumonia.—In lobar pneumonia, as in other acute infectious diseases, the digestive organs are less active than normal, and are in a condition which can be easily disturbed by any but the most simple food. The liver is less capable than in health of performing its important and complicated functions, particularly its anti-toxic function, on which unusual demands are being made. The kidneys, with reserve power lessened, are called on to eliminate an increased amount of waste and toxic material. In the condition of the heart and blood vessels indications for regulating the diet are found which are of the greatest importance. The unstable condition of the heart makes particularly dangerous disturbances due to nervous reflexes from the abdominal viscera, and especially those due to mechanical pressure from the abdominal cavity, which are caused by flatulent distention of the stomach or intestines. Abdominal distention, so dreaded in pneumonia, depends largely on indigestion and harmful bacterial activity in the intestinal contents.

The dietetic indications above suggested can be met, according to the experience of the writer, by giving, during the febrile period and for a few days after, food of a fluid, antiputrefactive character, consisting of modified milk, thin cereal gruels and fresh fruit juices, in quantities which will supply a daily ration of not more than 40 grams of protein and possess a fuel value of not more than 1,250 calories, and, in addition, full rations of the food salts required by the body. The twenty-nine cases above reported were so fed and no marked tympanites developed in any of them, nor any serious symptoms referable to the alimentary tract. Among the food salts, those of calcium call for special consideration in pneumonia. Calcium, which in certain amount is required by all the fluids and tissue of the body to maintain their healthy condition, and particularly by the muscle of the heart to enable it to contract in its best manner, and by the leucocytes to increase their functional activity, is regularly deficient in pneumonia. A condition of calcium starvation exists to a greater or less degree in this disease, which is brought about by the withdrawal of the stores of that element in the body to supply extraordinary requirements, viz.: to coagulate

the fibrin in the consolidated lung, to feed the large number of new leucocytes which have made their appearance on the field of battle, and even to feed the invading pneumococci, which seize calcium in the enemy's country for their own use. Unless this calcium deficiency is made good by the addition of a sufficient quantity of that element to the diet, there is reason to believe that the patient is handicapped in his struggle with the disease. The writer has included calcium chloride in the diet of nearly all of his patients with pneumonia since his attention was called to the importance of this article of food in pneumonia by Mitchell a year and a half ago.

The Use of Cathartics in Pneumonia.—Hippocrates, in his second *aphorism*, says: "Artificial evacuations, if they consist of such matters as should be evacuated, do good, and are well borne; but if not, the contrary." Who will deny the soundness of the teaching of this aphorism? While unnecessary or excessive catharsis may not do serious harm in many conditions, in a disease where failure and recovery are often so delicately balanced as they are in lobar pneumonia, it is quite possible that they may do so, and that they may even be fatal factors. The propriety of moving the bowels at the beginning of the disease if they have not acted within a reasonable time is unquestioned, but there seems to be no reason why this procedure should be made a violent one, thereby possibly disturbing its intestinal mucosa and impairing its resistance to the absorption of toxins; or that it should be indulged in more than is necessary; and especially to be condemned, in the writer's opinion, is the custom, so prevalent, of giving a dose of calomel followed by magnesium sulphate at the beginning or at any time in the disease. Mercury is of great value in many conditions, but the writer sees no reason why it should ever be used for the primary purpose of a cathartic and some why it should not; and magnesium sulphate is a toxin of so great cardiac depressant power, and so difficult to eliminate by the kidneys after absorption, which takes place in direct proportion to the strength of the solution, that he holds it to be a dangerous drug to use in pneumonia. The writer prefers to use, in most cases, castor oil or a vegetable cathartic at the beginning of the disease, in sufficient dose to insure a thorough but gentle evacuation, and after that, in general, to use simple enemas; and he believes that if the bowels are moved every second day that will be quite often enough, provided the patient's diet is so regulated as to minimize

putrefactive and fermentative processes in the alimentary tract which are of a menacing character. At or near the time of deferescence, or at any time if the heart is in distress, he prefers not to disturb the bowels at all.

The Use of Morphine in Pneumonia.—Pain, restlessness and sleeplessness are common symptoms in pneumonia, and it is highly desirable, especially during the early days of the disease, that they be relieved so that the patient will get such an amount of sleep that he will be able to approach the crisis of his struggle without the handicap of nervous exhaustion. For the relief of these symptoms no drugs are so efficacious, and at the same time safe, as the alkaloids of opium. The writer believes that in the early days of the disease morphine or codeine should be given in moderate doses to secure a fair amount of sleep if the patient is suffering for lack of it; and later in the disease these drugs may also be given if needed, though with caution and in very small dose, because it is undesirable to severely depress the respiration if the respiratory area is extensively encroached on, and especially is it undesirable to give opiates in any but small doses, if in addition there is circulatory failure and general pulmonary congestion. Analgesics and hypnotics other than opiates the writer does not at present employ in his treatment of pneumonia.

The Support of the Heart in Pneumonia.—The heart in pneumonia, except when the disease occurs in young children, nearly always needs direct support at some time during its course. This support consists mainly in judicious stimulation. In the aged, in alcoholics, and in those with pre-existing myocardial weakness, stimulation is usually required from the beginning. In young adults with originally healthy hearts it can usually wait until signs of strain appear, but it should not be delayed too long; it is better to give help before it is needed than to withhold it until after damage has been done. In most cases, on the third or fourth day, even if no symptom of circulatory disturbance appear, it is reasonable to suppose that the right heart is getting tired and would be benefited by a gentle stimulant. The amount of stimulation should, of course, be regulated by the requirements of the circulation, and the best guide to those requirements is the condition of the right ventricle, on which rests the burden of overcoming an obstruction in the pulmonary circulation. The most distinctive signs of failure of the right ventricle are: increase to the right of the area of deep cardiac dull-

ness, and diminution in intensity of the closure sound of the pulmonary valves, and, in addition, when failure is pronounced, cyanosis and other evidence of venous stasis. When the failure of the heart is due to vasomotor paralysis there is apt to be a grayish pallor instead of cyanosis. While stimulation of the heart is very often called for, and sometimes a large amount of it, special care should be taken not to exhaust the heart by the excessive use of stimulating drugs. Complete relief of the cardiac symptoms when extreme should not always be attempted; it is often sufficient for our purpose if we can keep the patient from dying for a few hours or days, until his disease has run its course; and it is easy to precipitate a circulatory collapse by overstimulation. The temptation, however, is very great to use extreme, even desperate measures of stimulation, when weakness and irregularity of the pulse appear before the crisis, with a steadily increasing pulse rate, a dilating right heart, an inaudible pulmonary second sound, and moist rales all over the lungs. But even of such cases the writer believes that more will be saved by keeping the stimulation of the heart within conservative limits than by yielding to desperate impulses. One method of treatment which has been recommended for cases of extreme right heart dilatation, viz., venesection, appeals strongly to the writer, though he has used it only once, and then with success. Among the numerous drugs which are used to stimulate the heart in pneumonia there is considerable choice. The writer has found the best results from the judicious use of strychnine and strophanthus as primary heart stimulants, with caffeine, digitalin, and aromatic spirits of ammonia as secondary or reserve stimulants.

In closing these few topical remarks on lobar pneumonia, the writer would like to repeat and emphasize the following suggestions regarding the treatment of that disease: (1) Give the patient plenty of fresh, cold air, but after defervescence protect him carefully from being chilled. (2) Keep down the production of toxins in his intestines, which form a very important element in the toxemias of pneumonia, by giving him a fluid, anti-putrefactive diet, supplying not more than 40 grams of protein daily, and possessing a fuel value of not more than 1,250 calories. Do not hesitate to give much less than the above quantities should abdominal symptoms appear. (3) Include in his diet sufficient quantities of the salts needed by the body, particularly the salts of calcium. (4) Do not de-

lay too long stimulation of his heart; regulate the amount of the stimulation by the capacity of his heart muscle to respond as well as by the requirements of his circulation. (5) Do not move his bowels unless they need it, which they will not be apt to do oftener than once in two days, if his diet is regulated so as to minimize injurious bacterial activity in his intestines, and let the methods used to move them be gentle.

THE TREATMENT OF SOME ACUTE EAR CONDITIONS BY THE GENERAL PRACTITIONER*

By Curtis C. Eves, M.D., of Philadelphia

IN no other branch of medicine and surgery do we find such a fruitful field for the practice of preventive measures as there is in the hands of the otologist. A large majority of the chronic, incurable ear diseases seen to-day are due to neglected pathological conditions of the nose and throat, or to overlooked ear complications in the course of acute infectious diseases of childhood.

A review of all the different methods of treatment for acute ear conditions would be very long and uninteresting. I have therefore selected a few of the acute ear diseases most frequently encountered in general practice, and shall discuss only those forms of treatment which have given best results and which, in most part, can be carried out with the armamentarium at the disposal of the general practitioner.

It will be well, first of all, to review briefly some of the anatomical relations so as to combat intelligently the source of the causes of the conditions. The channels of infection into the ear, with very few exceptions, are the external auditory canal and the eustachian tubes. The latter is by far the most usual source.

The external auditory canal is an oval, somewhat curved channel about one and one-fourth inches long, leading from the external ear to the middle ear. At the inner end it is completely closed off from the middle ear by the drum membrane which extends obliquely across the end from above downward. The outer half of the canal is cartilaginous, an extension of the cartilage forming the auricle inward; the inner half is bony. At the junction of the two parts the canal is smallest, and it is here we often have difficulty when attempting to remove foreign bodies. The lining membrane of

*Read at joint meeting of Bradford Co. and Sullivan Co. Med. Societies. Penn. Med. Jour., July, 1913.

the canal is a reflection from the skin. The skin is thick and strong, and freely supplied with hairs and sebaceous glands in the cartilaginous portion, but becomes thinner in the osseous part, especially near the drum, over which it is reflected as a cutaneous layer. Few or no hair follicles or sebaceous glands are found in the bony part. It is for this reason that furunculosis and other cutaneous infections are found in the outer half of the canal, and cause such severe pain because little or no subcutaneous tissue is found between the skin and cartilage. The function of the external auditory canal is to conduct sound waves against the membrana tympani.

The only source of communication which the middle ear has with the external air is through the eustachian tube, which extends from the lateral wall of the nasopharynx, directly behind the posterior opening of nostril on either side, backward, upward and outward to the upper anterior part of the middle-ear cavity. It is about one and one-half inches long, and, like the external auditory canal, is composed of an outer bony and an inner cartilaginous portion. The tympanic opening is about one-eighth of an inch in diameter but quickly tapers down until at the cartilaginous junction it is only possible to pass the smallest probe. From this point towards the throat, the cartilaginous portion gradually enlarges until at the pharyngeal opening it is about the size of a goose quill. The tube is lined throughout with ciliated columnar epithelium which is continuous with the epithelium from the nasopharynx throughout the tube to the middle-ear cavity. The function of the eustachian tube is twofold: First, to ventilate the middle ear (it is through this that the atmospheric pressure upon the outer surface of the membrana tympani is equalized); secondly, to drain the middle ear and mastoid cells.

The most frequently encountered acute ear conditions are acute purulent otitis media, acute, catarrhal otitis media, and furunculosis. No physician should undertake the treatment of any ear condition without first acquainting himself with the appearance of the normal external auditory canal and membrana tympani, through a speculum with a reflected light. A convenient and inexpensive means of light is the small pocket electric-battery lamp. This can be held alongside the patient's head by an attendant, while the light is reflected into the ear by means of head mirror. A little practice and patience with the reflected light and speculum will fully repay for the time it takes. By pulling the ear upward and back-

ward, the canal is straightened and the speculum can be inserted well into the ear, thus giving a better view. The same lamp can be used to inspect the throat by reflected or direct light.

Acute catarrhal otitis media is characterized by an acute non-purulent inflammation of the eustachian tube and middle ear. It is frequently seen in connection with a cold in the head, other forms of rhinitis and sore throat. It very often accompanies attacks of grip. Especially is it common in children suffering with adenoids and diseased tonsils. It is often seen in connection with the acute infectious diseases, although not so often as is acute purulent otitis media. This condition is very often the first stage of an acute purulent otitis media, and so closely resembles it that frequently a differential diagnosis can not be made in the earlier stage. The inflammation extends from the nasopharynx along the mucous membrane of the eustachian tube into the middle-ear cavity. The mucous membrane of the tube becomes swollen and congested, thus partly or wholly closing off its lumen which gives rise to most of the following symptoms. A sense of fullness in one or both ears, impairment of hearing and low-pitched noises. Patients are apt to think the ear full of wax. The condition may be well described as Packard says, as "stuffy tubes." Often there are darts of pain through the ear, although the pain and discomfort are usually referred to the area over the eustachian tube along the side of the neck. Patients frequently speak of a queer sensation in the back of the throat when the jaw is moved. This is caused by a partial opening and closing of the swollen tube.

Upon the examination of the drum it appears much retracted (due to the absorption of the air in the middle-ear cavity), reddened around the periphery and along the handle of the malleus or of a pale red color throughout. Sometimes in the later stage, the ear becomes filled with serum, due to lack of pressure, when the drum appears to be bulging and often the line of the upper level of the fluid can be made out and sometimes seen to move with the change of position of the patient's head. The collection of fluid is uncommon in children.

The general condition of the patient, together with the local treatment, should be carefully looked after. If the patient has an acute cold in the head, five grains of hexamethylenamine, or five grains of salol, administered every three or four hours, will be found beneficial. The use of aspirin and quinine should be avoided. Local applications should be made every day or

every other day to the nasopharynx, and into and around the mouth of the eustachian tube, of a two per cent. solution of cocaine, followed by a two or three per cent. solution of silver nitrate or a twenty-five per cent. solution of argyrol. The cocaine shrinks down the tissues around and the mucous membrane in the lower end of the eustachian tube, thus opening that part of the tube and affording a better opportunity to apply the silver solution further into the tube without discomfort to the patient.

The applications are best made with a cotton-wound applicator, slightly curved at the tip. The applicator should be passed gently along the floor of the nostril until it strikes the posterior wall of the nasopharynx, then it should be turned outward and moved up and down while it is gradually brought outward for about three-quarters of an inch. It will often be felt to slip over the posterior lip of the eustachian tube into the tube's opening.

When a rhinitis is present it will be much benefited by douching the nose twice daily with warm normal salt solution. The patient should be instructed carefully how to use the douche; as much harm to the ears can be done by carelessly flooding the nasopharynx. The safest douche for the patient to use is the small pear-shaped rubber nasal douche. In using it the head should be bent slightly forward and tilted towards the opposite side. If the douche is fitted into the nostril and squeezed gently the solution will pass up through the nostril, flow around the posterior end of the septum and out the opposite side. The head should be tilted to the opposite side when the other nostril is douched. After several douches have been used on each side, one nostril should be closed by the finger, the other left entirely open all the time, while the patient blows gently through it for several seconds. The other nostril should be cleansed of the excess salt solution in the same manner. After douching, a bland oil spray (camphor, 7 grains; menthol, 10 grains; liquid albolene to make one ounce) should be blown through the nose with an atomizer.

Patients should be cautioned not to blow the nose violently, and should always keep one nostril closed and the other open while blowing the nose at any time. The rapid opening and closing of the nostril while blowing through it is an excellent way of blowing infected material into the ear.

A thorough painting of the turbinates with a twenty-five per cent. solution of argyrol every two or three days, will be found of great benefit in shortening the duration

of a rhinitis. These applications should be followed by a bland oil spray. Should there be much pain accompanying this condition, relief will usually follow the application of heat to the side of the neck. The patient may be given some such solution as follows:—

Cocainæ	grn. i
Belladonnæ	℥vii
Glycerini .....	.5ss
Aquæ	ad 5ii

to be warmed and dropped into the ear when the pain is too severe.

In children too young for local applications, five drops of a solution of menthol, two grains; camphor, one grain; and liquid albolene, one ounce, should be dropped through the nose three times a day.

When slight earache and dullness of hearing occurs in children it should always awaken suspicion of adenoids, which, if discovered, should be thoroughly removed especially around the mouth of the eustachian tubes.

Acute catarrhal otitis media terminates in one of three ways, in spontaneous cure, in acute purulent otitis media, or in chronic catarrhal otitis media. Prompt and efficient treatment of this condition I consider even more important than the treatment of acute purulent otitis media, because so many of these cases can be aborted and much future trouble for the patient saved.

Acute purulent otitis media is the most frequently seen form of acute ear disease, and often is a source of more worry to the practitioner than a case of typhoid or pneumonia, because of the uncertainty of its course and termination. It is always the result of pus-producing bacteria invading the middle ear, usually through the eustachian tube. As stated previously, it is often secondary stage of acute catarrhal inflammation of the middle ear. Very frequently it complicates bad cold in the head, grip, measles, scarlet fever, and diphtheria. Cases are frequently seen during the bathing season, following violent blowing of the nose to dislodge water that has suddenly gotten into the nasal chambers. Tonsillitis and sore throat are common causes. In fact, anything that may cause an infection of the throat and nose may find its way to the middle ear. Other causes of abscess in the middle ear are improper removal of wax from the canal, blows upon the ear, or sharp instruments pushed into the ear which rupture the drum membrane and allow infection to pass through it. The condition is much more frequently seen in young children and young adults. It occurs most fre-

quently in the changeable seasons of the year.

The most marked subjective symptom is intense pain in the ear, of a throbbing character, which radiates along the upper jaw and up into the temple and side of the head. The pain is usually worse at night, very often keeping the patient from sleeping. There is deafness, a sense of fullness, and noises in the ear. Dizziness may occur if the case has progressed for some days. In uncomplicated cases, the rise of temperature is usually slight, except in children, when it may be considerable. In the course of acute infectious diseases, especially in scarlet fever and measles, where there is a sudden rise of temperature, even without pain in the ear, the patient's ear will often show a red, bulging drum, which, when incised, releases the pus and the temperature falls.

Upon examination of the drum membrane in acute purulent otitis media, it is seen to be red and bulging outward, often so markedly that it is difficult to make out the landmarks of the drum. Often we see small vesicles along the canal wall filled with blood. These cases are very often not seen until the spontaneous rupture of the drum occurs, when pus is seen in the canal. When rupture occurs, there is usually great diminution of pain. If the case has lasted for a few days, and the membrana tympani has not ruptured, there is apt to be tenderness over the mastoid antrum, due to extension of the inflammation backward into the mastoid cells.

The first step to be taken in these cases, if the membrana tympani has not ruptured, is the free opening of the drum membrane. This opening should be made in the posteroinferior quadrant and should be a free incision, at least one-eighth of an inch in length. This can be made with but very little pain to the patient, if the drum is painted with the anesthetic solution, equal parts cocaine, carbolic acid and menthol, which is allowed to remain five minutes before making the incision. I am in the habit of saturating a small piece of cotton with the solution and introducing it gently against the drum, allowing it to remain at least five minutes. I have done this repeatedly in children and opened the drum with very little pain. These incisions always heal and rarely leave any scar. When the drum is allowed to rupture spontaneously it usually makes a stellate opening often in a part of the drum which will not allow free drainage. Consequently the ear is a long time getting well, and often times goes on into a chronic purulent otitis media, owing to

the poor drainage; the opening is not nearly so apt to close and often leaves a scar upon the drum. Early and free incision of the membrana tympani shortens the course and decreases the danger of complications.

In scarlet fever cases when the ears are examined and opened as soon as redness and bulging occurs, it is unusual to have any further ear trouble following the disease. Scarlet fever ears are apt to rupture late in the upper part of the drum after the infection has done considerable damage to the structures of the middle ear. This is also true to a less degree in cases complicating measles. I would urge the frequent examination of the ears in cases of scarlet fever and measles. When an opening has been established in the drum membrane either by incision or spontaneous rupture, the subsequent treatment should be to promote cleanliness and free drainage from the canal and middle ear. Gentle irrigation three or four times a day, with warm, normal salt solution or boric acid solution is a sufficient method in most cases and may be carried out safely at home by means of a soft rubber ball syringe. After douching, the ear is gently dried by a cotton-wound match stick, and a small piece of cotton placed lightly in the external meatus. The so-called non-douche or dry method is of great value when the patient has a trained attendant. It consists of placing a small gauze wick drain within the canal. The wick should be replaced every few hours or whenever it becomes saturated. The danger attending this method is, that the secretions may become dried around the wick and block the drainage of the ear. The drum membrane should be inspected every few days to see if it is draining freely and gradually resuming its normal condition. If the drainage stops and the pain returns, the ear should be again opened.

After the discharge stops, which usually occurs in the course of two or three weeks, and the drum is healed, some deafness often remains. This may be relieved by the gentle use of the Politzer bag every third day for three or four times.

When the discharge keeps up without any decrease for two weeks or more, with increasing tenderness over the mastoid, extending backward and down over the tip, together with the sagging of the posterior superior canal wall, and with lateral headache and pain in the ear, it is imperative to open the mastoid. The same local treatment to the mouth of the eustachian tube as described in acute catarrhal otitis media should be carried out.

Furunculosis or circumscribed follicular

inflammation has its seat chiefly in the outer half of the canal wall. It is an infection of a single or a group of hair follicles or sweat glands. It often occurs in the most robust, healthy individuals. Very often it is seen in connection with a general furunculosis in perfectly healthy athletes. It is very common in those generally run down, and especially is it seen in diabetes. Mechanical irritation, such as the use of hat pins and toothpicks in the external auditory canal, frequently excites this condition. The general condition of the patient is very important in these cases, especially where the general resistance is lowered.

The pain which is so severe in these cases that the patient is robbed of his sleep, is usually radiated down the neck. This condition can be diagnosed when the pain is greatly increased by touching and especially by pulling upward and backward of the ear. If a point of swelling can be located a free incision usually causes rapid discharge of pus and the prompt relief of pain. Very often in these cases the whole canal is so swollen and tender that no particular pointing can be distinguished. In these cases I have found the best results by painting the canal with a solution of equal parts of cocaine, carbolic acid and menthol, then lightly packing the canal with ichthyol incorporated in gauze. This very frequently reduces the inflammation and relieves the pain, so that the patient goes home and sleeps well during the night. Where there is no discharge, this treatment is repeated every day for three or four days. It is unusual to see a case not improve rapidly under this treatment. When an incision is to be made, the cocaine, carbolic acid and menthol solution should be applied on a pledget of cotton which should be left in the ear for fifteen or twenty minutes. If a small sharp knife is used not much pain follows the incision. After the discharge has begun the canal should be kept clean by gently wiping with an antiseptic solution. Hot applications applied externally are very grateful during the painful stage.

Traumatic rupture of the drum membrane, impacted cerumen, and foreign bodies in the ear are conditions occurring frequently enough to warrant a brief consideration of their treatment.

When traumatic rupture occurs from a blow or a slap on the ear, from direct puncture by pushing an object into the ear, or from fracture through the bony canal, it should be let absolutely alone; a small piece of cotton placed in the external meatus constitutes the treatment, except that when pain occurs, heat should be applied. If in-

fection takes place later, which will be shown by purulent discharge, it should be treated as described for purulent otitis media, by keeping the canal clean with gentle irrigation.

I simply want to remind you that the syringe is the best and safest method to be first tried in removing wax and foreign bodies from the ear. The removal of impacted wax can be done more easily if the patient will drop five or ten drops of peroxide into the ear, three times per day, for one day, before the removal with the syringe is attempted.

When foreign bodies have remained in the ear for a long time, the use of peroxide will often loosen them so that they may be removed by syringing the ear.

A one or two-ounce metal piston syringe, with warm, normal salt solution, or, if in case of wax, a warm solution of sodium bicarbonate, should be used in the following manner:—

The ear should be held firmly upward and backward. The stream of solution directed with some force first along the upper canal wall. After three or four syringe-fuls have been used along the upper canal wall, the solution should be directed along the anterior, posterior and inferior walls in the above order.

In spite of the fact that this method is used carefully, there occurs a few cases of very hard wax and some foreign bodies which the syringe will not dislodge, which have to be removed by the careful use of the loop, spoon, or other instrument for the purpose. It would seem that owing to the danger of injury to the drum membrane and the canal wall, that the very obstinate cases of this kind should be referred to a competent aurist.

OIL OF ORANGE AND ETHER ANESTHESIA

A series of experiments conducted by G. O. Jarvis and A. Abrams with the view to show the action of the oil of orange in connection with ether anesthesia, led to the conclusion that the oil inhibits the nasal reflexes produced by ether when the latter is administered alone. It was found also that the oil partly suppresses the pulmonary reflex of dilatation produced by plugging both nostrils with cotton.

Inhalation of oil of orange actually evokes a lung reflex of contraction analogous to that produced by adrenalin. Ether alone inhibits ciliary motion, whereas the addition to it of oil of orange augments this motion.—Monthly Cyclopedia, Jan., 1913.

PYELITIS AS A CLINICAL ENTITY*

By P. I. Nixon, M.D., of San Antonio, Texas

It may be necessary at the outset to make some explanation as to why a paper on pyelitis, a subject which in itself is distinctly medical, is presented before the surgical section of this society. It is quite true that pyelitis is a medical disease, and that surgery is rarely necessary in its treatment; yet when we consider the differential diagnosis and when we remember that the abdomen has been uselessly opened many times when an examination of the urine would have cleared up the diagnosis, the subject at once assumes a surgical aspect.

It is not my purpose to review the rapidly accumulating literature on pyelitis, nor is it my intention to take up the several allied conditions. Such a consideration would be beyond the province of this brief report and its practical impossibility is attested by the fact that up to August 30, 1911, 224 articles had been published on pyelitis complicating pregnancy alone, not to mention the countless communications on other phases of the subject. Suffice it to say that the impression gained from this study and my own experience is that the recognition of this disease is far less common than the disease itself, and this impression is heightened by the fact that observers who failed to diagnose their first cases had no difficulty in recognizing the condition when it was subsequently encountered. This disease illustrates well the truth of the dictum that we find that for which we look, and serves to emphasize that no physical examination is complete without a careful urinalysis, for it is an undeniable fact that many diseases of the kidney and diseases of organs other than the kidneys are often missed because a systematic urinary examination is neglected.

To-night I propose briefly to inquire into the etiology of pyelitis, to consider the modes of invasion, its symptoms, diagnosis and treatment, and, if time permits, to cite a few illustrative cases.

Etiology.—By pyelitis we are to understand a catarrhal or suppurative inflammation of the kidney pelvis, unaccompanied by lesions in the kidney substance proper. Its etiology is complex and in some respects obscure. The causes are classified as predisposing and active or exciting. Under the former heading may be included any condition which lowers the general resistance of the body, or any condition which lowers the local resistance in the kidney itself.

The active causes are practically always bacteria and at the head of the list stands the colon bacillus with the gonococcus, *B. proteus vulgaris*, staphylococcus, streptococcus, tubercle bacillus, *B. typhosus*, *B. lactis aerogenes* and a few rare organisms occurring with less frequency.

Modes of Infection.—Given the two requisites for infection of the kidney pelvis—lowered resistance and the presence of bacteria—the question naturally arises how do the infecting organisms gain entrance to the kidney? This is a question about which much has been written but about which little is definitely known. About a year ago I had occasion to study two cases of gonococcal infection of the kidney and in reporting these cases I considered the two principal modes of invasion.

It might not be malapropos to summarize briefly some of the facts there brought forward in connection with the modes of infection. There are two principal modes, ascending and descending.

(a) Ascending infection. There are four possible routes by which bacteria can reach the kidney from the lower urinary tract:

1. Through the vesico-utero-ovariorenal circulation.
2. By continuity along the mucosa of the ureter.
3. Through the blood vessels of the ureter.
4. Through the lymphatics. This is probably the most important route of ascending infection.

(b) Descending infection. Bacteria may be transported by the blood-stream, lodge in the kidney pelvis and there initiate inflammatory changes. When we recall the frequency of bacteria in the urine in certain diseases (25 per cent in typhoid fever) the wonder is that the kidney is not affected more often. It would seem that some existing local mischief is necessary to allow the organisms to gain a foothold.

It is not determined which of the two modes of infection is the more important. The great preponderance of female cases would lead one to believe that ascending is more frequent.

Under etiology or modes of infection two types of the disease should be emphasized: pyelitis of pregnancy and the puerperium and pyelitis of infancy. In the first place pyelitis is distinctly more frequent in women, probably due to the more frequent occurrence of nephroptosis in women and to anatomical conditions lower down in the urinary tract which lend themselves to ascending infection. And pregnant and puerperal women are more prone to pyelitis than

*Read before the Bexar Co. Medical Society. Southern Med Jour., July, 1913.

the average of other women. This proneness to pyelitis during pregnancy is to be explained on mechanical grounds: pressure of the child's head on the ureter as it crosses the pelvic brim leads to stagnation of urine and lays the kidney pelvis liable to infection. Credence is lent to this explanation by the fact that in most cases the symptoms disappear as the head descends and the pressure is relieved. The condition is most likely to occur from the fifth to the eighth month and on the right side.

As to pyelitis of infancy time permits but a few words. The collection of a suitable specimen of urine is not always easy, but is quite important. Ordinarily when a child has fever and other signs of infection, and especially if it vomits, we think at once of the intestinal tract and begin to purge and starve the child; it would be well under such circumstances to keep in mind the kidney and examine the urine, for pyelitis in an infant, as well as in an adult, may cause grave constitutional disturbances without any symptoms referable to the urinary tract. Broderich thinks that pyelitis in infants is often secondary to intestinal disorders; he reports six cases in each of which there was a preceding history of ileocolitis. And Friedenwald in a series of eighty cases found that fifty-nine were directly preceded by some infection or acute nutritional disorder. So it is well for us to remember that pyelitis may complicate an intestinal infection of infancy or may be a sequel to it.

Symptoms.—The symptoms of pyelitis are as protean as its causes. The onset may be slow and insidious or stormy with headache, chills and fever or prostration. It has seemed advisable to divide the cases into four groups: the urinary, the malarial, the septic and the typhoidal. Naturally these types will fuse into one another and a given case may present symptoms of one or more groups and certain symptoms may be common to all groups. However, this classification seems justifiable.

In the urinary type the vesical symptoms overshadow the constitutional. There is increased frequency of urination with pain or burning, even when there is no involvement of the bladder. There may or may not be pain in the kidney region; this may be insignificant or it may be so severe as to stimulate renal calculus. In spite of the increased frequency, the amount of urine is usually diminished and sometimes in severe infections, especially in bilateral involvement, there may be complete anuria.

The characteristic of the malarial form

is that the paroxysms of chills, fever and sweating occur with such regularity that one thinks of an infection with the plasmodium of Laveran. This type has recently been emphasized by Vanderhoof.

The septic type differs from the malarial in that the paroxysms come at irregular intervals and headache is more likely to be present. When I say this I am not unmindful that the paroxysms of malaria, notably aestivo-autumnal malaria, are not always regular in their occurrence.

In the typhoidal type, after a period of lassitude and inaptitude for work, the patient begins to complain of headache or perhaps anorexia. He has fever which remains continuously above the normal level. Nausea and vomiting are variable symptoms. Pain in the abdomen may be indefinite or may be referred to one or both kidneys or possibly to the appendix. In this, as well as the septic and malarial forms, the urinary symptoms may be very troublesome or they may be so slight as to escape detection. The characteristic disproportion between the pulse and temperature curve is not uncommon. When the symptoms are fully developed the patient presents a picture so similar to typhoid fever that, as Osler suggests in regard to the differential diagnosis of certain cases of diphtheria and scarlet fever, "It would puzzle Hippocrates to say whether the two diseases coexisted," without an examination of the urine and blood.

As was mentioned, this classification of symptoms is not clear cut; the line of demarcation between the several types is not distinct and a given case may fall in certain respects into one, all or none of the groups outlined above.

The symptoms enumerated have reference to the acute form. In chronic cases the onset is likely to be insidious, the constitutional disturbances slight, the pain never acute and the fever never high. The urinary symptoms are not marked and there may be periods when none are present.

Diagnosis.—The diagnosis is of the utmost importance, as it may spare the patient useless operative interference or futile drug-giving for malaria, and will indicate a rational line of treatment. The diagnosis is to be made from the symptoms, the physical signs and the urinary examination. Evidences of an acute infection are to be expected; flushed cheeks, coated tongue, rapid pulse, fever, etc. Leucocytosis of moderate degree is usually present. The spleen may be enlarged. More or less tenderness in the kidney region can be elicited. The kidney is not greatly enlarged, but if the right be affected it can usually be felt and is found

to be tender. Tenderness in the costo-vertebral angle is a significant sign when present.

But the diagnosis can be made only tentatively from the foregoing; it can be absolute only after examining the urine, and the specimen should preferably be obtained through the ureteral catheter. The presence of pus in urine catheterized from the bladder, coupled with symptoms, is very suggestive, but not pathognomonic. Chemically the urine does not differ from that in other renal infections. It may be acid or alkaline, depending on the invading organisms. Albuminuria is to be expected; the amount of albumin, however, is not trustworthy in differentiating cystitis and pyelitis. The urine is more or less cloudy, the cloudiness being due to pus cells. It is to the microscope that we must look for an ultimate diagnosis. Pus in the kidney urine is the pathognomonic finding; it is usually present in large amounts, may vary from day to day and may not be found at the onset. In one of my cases there was no pus in the urine till the third day. Red blood cells are exceptional. Antecedent or accompanying nephritis may cause casts to appear in the urine. Stained smears of the urinary sediment will usually show the offending bacterium; culture methods are more dependable. Often bacteria are present in myriads and, in the case of the typhoid and colon bacillus, are actively motile.

The diagnosis of acute pyelitis is naturally more difficult in right-sided cases. It must be differentiated from acute appendicitis, cholecystitis or gall-stones, pyelonephritis and other infections of the kidney proper, malaria and typhoid fever. A careful history and thorough examination will differentiate this varied group of diseases. In typical cases of appendicitis or cholecystitis pain and tenderness are located in characteristic positions, the gastro-intestinal disturbances are likely to be more prominent, tenderness in the costo-vertebral angle is never elicited and pus in uncomplicated cases is never found in the urine. It is well to remember that pyelitis may complicate or follow appendicitis; Hunner has reported four such cases. The development of jaundice will, of course, aid in clearing up the diagnosis between pyelitis and cholecystitis or gall-stones. Fever and leucocytosis are common to all three conditions, but in infections of the appendix and gall-bladder they are likely to be less marked. Intermittent hepatic fever of Charcot, from a stone in the common duct, may give rise to a chain of symptoms not dissimilar to

pyelitis of the septic or malarial type.

The differentiation between pyelitis and other infections of the urinary tract is sometimes very difficult. Indeed there must be all gradations and combinations of infections of the kidney pelvis and the kidney proper. When the kidney substance is involved constitutional disturbances are likely to be more severe, casts may appear in the urine and the functional capacity of the affected kidney to excrete sulphonephenolphthalein or indigo carmine, preferably the former, will be diminished.

There is one kidney condition which I would like to emphasize, namely, the acute haematogenous infections recently brought to the attention of the profession by Brewer, Cobb and others. According to Farrar Cobb, "These acute cases present an exact picture of an acute abdominal infection—sudden abdominal pain, tenderness, muscular spasm, vomiting, high temperature, pulse and leucocyte count." Tenderness in the costo-vertebral angle is said to be a constant sign and may be the only thing pointing to the kidney. Pus may or may not be present in the urine. Should it be present it is difficult to differentiate this condition from pyelitis; in the former, especially in the fulminating cases, the onset is usually more stormy and the symptoms more violent.

Malaria can be differentiated from acute pyelitis by finding malarial parasites in the blood on the one hand and pus in the urine on the other. The occurrence of chills, fever and sweating at uniform intervals is not enough to justify a diagnosis of malaria. Personally I feel that the diagnosis is justified only by demonstrating the parasite and I'm sure the terms "malarial infection" and "typhoid malaria" as usually used are wanton misnomers.

The diagnosis between pyelitis and typhoid fever cannot be made from symptoms and physical signs, nor will pyuria differentiate the two, for pyelitis is not an uncommon complication of typhoid fever. Leucopenia is the rule in typhoid fever, but a complicating pyelitis may cause a leucocytosis. A positive Widal or blood-culture is the only conclusive proof that the patient is infected with Eberth's bacillus.

Treatment.—The treatment of pyelitis is the treatment of any other acute infectious disease, coupled with certain measures directed toward the local lesion. At the onset the treatment should be conservative and expectant and eliminative. Absolute rest in bed and quiet, restricted diet and free bowel movements are essential. Hydrotherapy, internal and external, should be insisted on.

The patient should be induced to drink at least five or six quarts of water in twenty-four hours; in this way the toxemia will be combatted and the inflamed kidney pelvis will be continuously irrigated. If the temperature be persistently elevated a sponge or tub bath should be given every three or four hours for elevation above 102.5 degrees. Hot or cold applications, preferably the latter in the form of an ice bag, to the affected side will be found grateful. The pain, if severe, can be controlled by codeine sulphate or some more potent opiate.

Hexamethylenamine in doses of 40 to 150 grn. a day should be given, dissolved and well diluted. It is not quite clear whether this drug is more effectual when the urine is acid or alkaline. Thompson administers potassium citrate till the urine is alkaline, and then gives hexamethylenamine in doses of from 3 to 5 grn. three times a day. On the contrary, Jordan carried out a series of careful observations which show that the antiseptic power of hexamethylenamine in alkaline or neutral urine is almost nil, whereas its antiseptic power rapidly rises as the acidity increases; hence he advocates the administration of acid sodium phosphate along with the other drug.

Burnam has recently worked out a more trustworthy method of administration. He has shown that hexamethylenamine per se has no bactericidal properties; he believes that the drug is valuable only in so far as it is decomposed into formaldehyde in the urine. He begins with a dose of 10 grains and if this causes no free formaldehyde in the urine the dose is increased to 20 grains, and if there is still none to 30 or 40 grains, repeated every four hours. In this way formaldehyde will appear in the urine of most cases in sufficient concentration to destroy bacteria or to inhibit their growth. He found a few individuals, however, who apparently lacked the power to break down hexamethylenamine into formaldehyde, as the latter did not appear in the urine when the dose was raised to 100 grains. So it is evident that there is no fixed dose; this can be established in each individual case by testing the urine and observing the tolerance of the patient. According to Burnam, "the proper treatment is to give a dose just large enough to be under that necessary to cause bladder irritation" and at the same time sufficiently large to produce an adequate concentration of formaldehyde in the urine.

This important work has been confirmed by L'Esperance and Cabot, of Boston, in a series of 250 cases. These observers emphasize that the all-important factor in the

use of hexamethylenamine is the formaldehyde content of the urine and they believe that acidity and alkalinity play no part whatever.

The status of vaccine therapy in pyelitis is not firmly established. Dudgeon and Ross are enthusiastic in their defense of it, while others have not found it to be of benefit. Certainly one would be justified in resorting to its use in refractory cases, and its use as a routine can do no harm. In colon bacillus infections, stock vaccines are practically useless; the vaccine must be autogenous. The investigations of Williams, Murray and Wallace and Barris uphold this belief; they have isolated a considerable group of organisms, "coliform" bacilli, which differ from the colon bacillus in one or more characteristics. These cases are best treated by use of a vaccine made from the infecting strain.

When practicable, catheterization of the ureters once or twice a week and lavage of the kidney pelvis with 1:50 boric acid solution, 25 per cent argyrol, or 1:1000 silver nitrate is indicated in all severe cases. This is a rational mode of treatment and is usually beneficial, but that such a procedure is not always advisable is shown by one of my cases, in which an acute flare-up was caused by each catheterization.

Ordinarily pyelitis of pregnancy can be brought to a satisfactory termination by carrying out the measures outlined above, along with daily assumption of the knee-chest posture in the later months of pregnancy. However, if improvement is not rapid, and the patient's condition becomes alarming, or if signs of pyelo-nephritis appear, premature labor should be induced. In forty cases collected by Swift thirty-five went to term, four miscarried and premature labor was induced once.

Hunner is of the opinion that "few or perhaps none of these cases will require abortion in the future unless it be for complications other than the kidney infection."

The indications for surgical interference are not the same in the minds of all surgeons. Most uncomplicated cases will yield to medical measures. In pregnant patients, surgery should not be resorted to till the induction of abortion or premature labor has failed to arrest the symptoms. Rolleston regards surgical measures as unnecessary except in severe cases in which supuration has spread to the substance of the kidney, in chronic cases in which a pyonephrosis has developed, and in secondary cases in which there is a renal calculus.

Prognosis.—The prognosis in pyelitis is usually good. Recognized early and treated

rationally, most cases will clear up, though the symptoms may persist for weeks. Occasionally an acute case will become chronic and second attacks have been reported.

And now, in conclusion, I feel called upon to ask your forbearance for having burdened you with so many every-day symptoms and common-place signs; my only apology for having done so is that they are symptoms and signs due to a condition which has not received the attention it justly deserves.

USES OF APOMORPHINE*

By R. B. Epting, M.D., of Greenwood, S. C.

Apomorphine is a derivative of morphine or codein, and is one of the most valuable drugs we have. It is especially useful because as an emetic, acting upon the vomiting centers, it does not irritate the mucous membrane of the stomach, as do other emetics. This is especially true in gastralgia and acute indigestion. Given hypodermically, the effect of apomorphine is produced in two or three minutes; thus making it a quick remedy in cases of poisoning. Even in opium poisoning, if the opium has not produced drowsiness, the result can be gotten from apomorphine before the stomach pump can be used, even though it is in your emergency satchel.

In any case, where relaxation is wanted, one can use apomorphine with quick and good results. It is useful in croup, asthma, hysteria, hystero-epilepsy, eclampsia, tetanus,—and convulsion, even from strychnine poisoning. In eclampsia, where large enough doses of morphine are contra-indicated, you can relax patient, control convulsion, and produce elimination through the skin (thus relieving the kidneys) by the use of 1/20 apomorphine and 1/12 morphine.

Apomorphine is especially valuable in all hysterical cases where the patient is rigid, for it will not only give relief then, but will help to cure them.

For delirium tremens, or even a big drunk, apomorphine with a small dose of morphine and atrophine, and, if needed, a small dose of heart stimulant, will sober in a short time.

For some patients, morphine alone does not have the desired hypnotic effect and for some it causes nausea; if 1/40 grn. of apomorphine be added to the morphine given such cases, the desired hypnotic effect will be produced quickly without the nausea following.

Mode of administering is very important.

As an emetic, always give apomorphine

hypodermically. The stomach should be first filled with warm water before the injection is given, as this aids the apomorphine in emptying the stomach and makes vomiting easier. In cases of this kind (except opium poisoning) when I administer emetic doses of apomorphine, I always combine a small dose of morphine and atrophine, and if the heart is weak, strychnine also. When thus given, the nausea will be over soon, and rest and sleep quicker.

As an expectorant, give frequent small doses by the mouth.

For pain, where the nervous tension is great, and morphine is administered quicker relief can be gotten, with less of the bad after effect of morphine if 1/30 grn. of apomorphine is added. In hepatic or kidney colic, relaxation is especially needed; it can be gotten with apomorphine added to morphine. There is also less danger of the patient forming the "morphine habit" when this combination is administered.

In summarizing, I will say give frequent small doses of 1/30 grn. by the mouth, until effect is produced, when used as an expectorant.

As an emetic, the dose is 1/20 grn. apomorphine, 1/12 grn. morphine, and 1/300 grn. atrophine.

Always give several glasses of warm, salt water, with the suggestion that the water will cause vomiting.

Reasonable care should be taken in administering to very weak patients, to the aged, and to young children.

SALVARSAN IN NON-SYPHILITIC DISEASES

Salvarsan and neosalvarsan are also indicated in local conditions caused by spirilla. This includes Plauth-Vincent's angina, gingivitis simplex and mercurialis, stomatitis simplex and mercurialis, certain forms of glossitis, ulcers due to scurvy, noma, periodontic abscesses, pulpitis and pyorrhea alveolaris. In many other ulcerative processes in the mouth and pharynx, good results may be expected if there is a secondary infection with spirilla, no matter what the original condition. According to Gerber, a good effect has also been reported in pemphigus of the mouth, foot and mouth disease, carcinoma of the tongue and scleroma. At first the drugs were injected intravenously as for syphilis, but a better way is the local application. A 5 or 10 per cent. aqueous or glycerin solution is used or else the powder is insufflated directly. A good way is to impregnate an applicator with glycerin, dip it into the powder and then rub it thoroughly into the ulceration.—Muench. med. Woch., March 25, 1913.

*Read before the Railway Surgeons' Assn. Charlotte Med. Jour., Feb., 1913.

Progress in Materia Medica and Therapeutics

TREATMENT OF HERPES

Blair writes, that in its simple form, herpes requires little except emollient applications and sedative washes. If there are crusts they are to be removed and an ointment of 10 grains of calomel in an ounce of cold cream applied. The crusts, however, are not to be detached too soon.

Severe cases should be treated somewhat like eczema. Herpes labialis requires an application which will stick and be non-poisonous. The author recommends the following:

Tinct. Benzoin. Comp.....f. 5ij
Bals. Peruvianæf. 5j
Adipis Lanæ Hydrosi..... 5v

Herpes zoster may be much relieved by the following:

Morphinæ Sulphatisgrn. ij
Zinci Oxidi5ij
Amyli Pulv.5vj

The lesions are to be cleansed and the above applied on a soft bandage. The dressing is to be frequently renewed. If a dry dressing does not relieve apply the following:

Ichthyolisf. 5ij
Ext. Opiigrn. x
Adipis Lanæ5iv
Petrolati5ij

Other remedies of value are veratrine (1:40) with extreme care, zinc ointment, morphine collodion (1:100), and applications of galvanism.—Med. Council, Nov., 1912.

DIURETICS IN NEPHRITIS

H. A. Christian, of Boston, reports the results of experiments on animals with diuretic drugs after they had been subjected to a severe nephritis produced by uranium nitrite. A portion of the work has been published previously. In all, eighty-two rabbits were used, half of them controls. The nephritis produced was fatal in all except twelve rabbits, nine of which had received theobromine sodium salicylate. Of those receiving the drug the average duration of life was less than in the controls, showing that it materially shortened their existence. In another series of experiments, soon to be published by Walker and Dawson, a similar study was made of caffein, theocin, potassium acetate, sparteine sulphate and water. The results are essentially similar

to those in the first series; water being the least effective in shortening life, though on the whole it tended to do so. In still another experiment with six rabbits, the effect of diuretin on the kidney as measured by some of the tests for renal function was tested. There was a prompt decrease in the nephritic kidney in the excretion of phenolphthalein, which was less marked in another set of five animals with a milder nephritis, similarly produced. Experiments as to the influence of diuretin on nitrogen retention in the blood have been reported to the Association of American Physicians. Here only the very severe nephritis was studied and theobromine salicylate seemed to have little, if any effect, on the nitrogen retention. While these experiments do not justify any deductions directly applicable to therapeutic problems in man, they are suggestive as indicating the need of careful re-examination of the effects of various diuretics in nephritis.—Jour. A. M. A., July 26, 1913.

EFFECT OF DRUGS ON THE UTERUS AFTER PARTURITION

W. Ruebsamen has tested the effect of certain drugs upon the contraction of the emptied uterus by placing a weight upon the organ and connecting this by means of a writing lever with a drum. It was found that after an intramuscular injection of 1 Cc. pituitrin the uterus begins to contract regularly after four to six minutes, while if the same amount is injected intravenously, the effect is apparent in 20 seconds. After subcutaneous injections, the effect is delayed 15 to 20 minutes. With larger doses, it is possible to obtain a tetanic contraction. The effect usually lasts half to three-quarters of an hour, and after this the normal rhythm is restored. The injection may be repeated with the same effect, but the same or a slightly larger dose will be required. An intramuscular after an intravenous injection is generally without result. The effect of pituitrin is always more pronounced where the natural contractions of the uterus are insufficient, though a good effect is also quite constant under normal conditions. In severe, atonic hemorrhages, the author states, the effect is often magical, particularly if the drug is injected directly into the veins. This applies particularly where other drugs have been used without avail.

The drug should always be injected into the veins very slowly (about 50 seconds for 1 Cc.); sometimes the patients become pale and nauseated and perspire, though only for a very short time. If the hemorrhage returns after 20 to 40 minutes, a second injection may be safely given. Pituitrin may also be used immediately after the child is born; in this way it is possible to reduce the loss of blood from the normal 300 Cc. to 35 to 80 Cc., which is of the greatest importance in anemic and exhausted women. The drug is also of the greatest value in placenta previa and before cesarian section is performed. Various preparations of ergot were also tested, but their effect was never so pronounced. — Muench. med. Woch., March 25, 1913.

TREATMENT OF INTERNAL HEMORRHAGES

The methods of controlling internal hemorrhages such as those from the lungs, stomach, intestinal and urinary organs are discussed by Frank Billings, of Chicago. In the treatment an endeavor should be made to excite thrombus formation in the wounded vessel, and the first principle to apply is rest, both mental and physical; excitement of the patient at the sight of blood must be controlled by moral support, reassurance of recovery, calmness and prompt methods. The immediate treatment must be an hypodermic injection of morphine sulphate sufficient to produce physical calm and mental quiet, repeated if necessary with due consideration of the patient's condition. Absolute physical quiet should be maintained from twenty-four to forty-eight hours in case of severe hemorrhage in typhoid, tuberculosis, gastric ulcer, etc. If taking food requires effort, it may be withheld and thirst may be controlled by small amounts of water, except in hemoptysis, when normal sodium chloride or calcium chloride to the amount of 250 to 500 Cc. may be given by enema every four or five hours. An ice bag or an ice coil may be applied over the affected organ as it is claimed cold so applied penetrates the tissue to a considerable depth and it will probably have a good moral effect and do no harm if rationally used. Most hemorrhages, if controllable, cease without further treatment, but if coagulation, as shown by tests, is prolonged over four or five minutes, measures to improve the coagulation time of the blood can be employed. In all hemorrhages, except from gastrorrhagia, calcium may be given by the mouth in the form of the chloride phosphate, lactophosphate or lactate in the dose of one Gm. every two to four hours; when necessary it may be given

in solution per rectum. If there is lack of a ferment in the patient's blood, normal human or horse serum or even diphtheria antitoxin may be given intravenously or hypodermatically in dose of from 10 to 30 Cc. or even more. Billings has very little faith in astringent drugs, or in hypodermic use of ergot or epinephrin, which are likely to increase blood-pressure and expel the thrombus. For the same reason he condemns intravenous transfusion or hypodermoclysis of sodium or calcium chlorid, which have their use only in cases of proximate exsanguination and for the purpose of supplying a circulating medium. The irrational use of stimulants like strychnine, camphor, etc., and of heart tonics may be harmful. They should only be employed to counteract dangerous collapse. In hemostasis due to chronic ulcer, the bleeding may not cease so long as the stomach is distended with blood and other contents. Lavage with normal salt solution until the stomach is empty is safe and often effective, and then a large dose of bismuth subnitrate may be used, which is more efficient than any other so-called styptic. The stomach should have absolute rest and nothing be taken by the mouth in the way of ice, food or drink. In typhoid, perforation occurs in 20 per cent. of the hemorrhages and the most absolute rest must be secured. The patient should not be permitted to even use a bedpan, but fortunately the patient can take liquids by the mouth. Billings thinks that many cases of internal bleeding are badly treated by the use of drugs that only aggravate the hemorrhage. — Jour. A. M. A., July 26, 1913.

TRANSFUSION

The therapeutic uses of transfusion other than as a last resort in desperate conditions are pointed out by B. M. Bernheim, of Baltimore. At present it ranks as an emergency operation and it will always have its uses as such, but in reviewing his records he was impressed with the number of other conditions in which he had found it useful. First he considers its value in the hemorrhage cases of gastric or duodenal ulcer where rest, starvation, ice bags, morphine, etc., with a little horse serum or human serum are usually relied on. He thinks in such treatment we have utterly missed the real point of attack, and asks how we can thus build up the nutrition of the exsanguinated patient when the body has all it can do to regenerate new blood. In certain obscure anemias, formerly considered intractable, he has also had gratifying improvement from transfusion; and certain toxemias, obscure and often deadly, can, he says, be

helped by new blood. Encouraging reports of its value in pernicious anemia have been received, though in this disease repeated transfusions seem necessary. In the vomiting of pregnancy its value has been shown and he thinks it should be tried in eclampsia that fails to respond to treatment. He has used transfusion with success in one case of pellagra, in which he believes it acts by increasing the resistance of the patient and cannot be considered in any way specific. He has obtained temporary relief in pemphigus foliaceus and psoriasis. There are other conditions where a supply of good red blood would, he thinks, be of advantage to the patient, such as chronic infections and general debility without definite disease, undernourished children and prematurely born babies, etc. Also in gas-poisoning, typhoid hemorrhage, shock, etc. Transfusion is not to-day the formidable operation once supposed. Danger from hemolysis and anaphylaxis is comparatively nil and careful selection of the donor (Wassermann test is especially advisable) will rule out any transmission of disease. He asks practitioners to consider the suggestions he has made.—*Jour. A. M. A.*, July 26, 1913.

PHARMACOLOGY OF CALCIUM

It was shown some time ago by Jacques Loeb that the calcium ions are indispensable to life. They are present in all the tissue juices and in general exert a sedative action in that they neutralize the stimulating effect of the sodium ions. Under normal conditions, the concentration of both sodium and calcium in the tissues is fairly constant; if there should be an excess of sodium there will result irritation while with an excess of calcium, paresis. Substances which precipitate calcium will have an irritating effect since the neutralizing effect of the calcium ions will be lost. Poisoning with acids will remove large amounts of calcium from the tissues hence will generally have an irritating effect. Fibrillary twitchings induced by physostigmine can generally be controlled by giving calcium. There can be no doubt that there is an intimate relation between calcium metabolism and the functions of the thyroid and the parathyroid though the exact mechanism is not well understood. The relation of the thyroid to the growth of bone is clear: absence of the gland will inhibit the growth of bone while the administration of thyroid extract will favor the formation of callus in fractures. Hyperthyroidism is accompanied by an excessive excretion of lime. It is also probable that in tetany there is some disturbance in

the metabolism of the lime salts. The removal of the parathyroids will cause very evident changes in the dentin of the teeth. Tetany experimentally induced in dogs can be influenced by giving lime and after the extirpation of the parathyroids, there is an increased excretion of calcium. Many clinicians have reported upon the favorable effect of lime medication in human tetany and spasmodophilia. Lime has also been recommended in other conditions of hyperirritability such as bronchial asthma, chorea and epilepsy.

Lime salts also possess the property of removing phosphates from the system. Calcium carbonate has been recommended per os to neutralize urinary acidity in uraturia.

Another important function of lime is its effect upon the coagulation of the blood. Calcium salts here have been recommended both internally and subcutaneously (hemophilia, purpura hemorrhagica and scurvy). Experimentally, it can be demonstrated that the coagulation time of the blood is hastened after the administration. Wright also speaks well of the effect of the salts upon exudative conditions of the skin (Urticaria, serum rashes, etc.). Other indications for the use of the lime salts are hay fever, catarrhal symptoms of iodism, exudative pleurisy, rickets and osteomalacia.

If calcium salts are given by mouth, the effect is very slow and a result can only be expected after several weeks. The following prescription is recommended by P. Saxl:

Calcii Chloridi 5iv
Syrupi Simpl. f. 5j
Aque Dest. ad. f. 5x
M. Sig.: One tablespoonful every two hours.

Where there is a tendency to constipation, calcium lactate, grn xv three times a day, may be substitutes.

A better way would be to give calcium salts subcutaneously but they only too readily give rise to abscesses. A 5 per cent. solution of calcium chloride in gelatine is, however, suitable for intramuscular injections and is generally very well tolerated. A preparation has now been placed upon the market under the name "Calzine," which can be injected in doses of 5 Cc. and is perfectly harmless though it may cause a slight rise of temperature and moderate pain. The author speaks very well of this preparation and has treated a large number of cases of hemorrhagic diathesis with the best results. Even severe bleedings were controlled by one to three injections. The coagulation time of the blood was considerably shortened and the only bleedings which were not influenced were

those due to nephritis. In all cases, the effect was much more pronounced than after the internal administration of the lactate. Exudates into serous cavities were not influenced but there was no recurrence if the fluid was first drawn off. Excellent results could also be recorded in bronchial asthma, edema fugax, symptomatic chorea. In Basedow's disease, the results were not uniform while in tetany there was very little improvement.—*Medizinische Klinik*, 1913, No. 15.

SALVARSAN IN AMEBIC DYSENTERY

S. H. Wadhams and E. C. Hill, of Buffalo, N. Y., published the history of three cases of amebic dysentery apparently cured by salvarsan administration. As a cure for syphilis, salvarsan and neosalvarsan had been somewhat of a disappointment but they had noted their constant and apparently direct action on the intestines as was indicated by a two or three days' diarrhea which followed the injections in cases of constipation, and in a few cases with normally loose movements, constipation followed. In the first case a patient with a venereal history and who also had chronic amebic dysentery reported a cure of the latter after the administration of neosalvarsan for the specific disease. In the second patient there was no record of syphilis, but his discharge from the army was pending when his diarrhea was cured by the administration of neosalvarsan. The third case was similar. While these cases prove nothing, these results were so striking that it seemed desirable to make this brief report and suggest further trials of the treatment by others.—*Jour. A. M. A.*, Aug. 9, 1913.

INFANTILE DIARRHEA

R. O. Clock, of New York, reports the results of the treatment of infantile diarrhea by the intestinal implantation of the *Bacillus lactis bulgaricus*, in a hundred and seventeen cases at the Babies' Hospital, New York, in the summer months of 1912. One hundred and sixteen patients recovered. The case of the one that died is reported. It was a severe case of enterocolitis, of two weeks' duration before treatment. Seventy-two of the one hundred and sixteen cases that recovered returned to the dispensary the following winter with some other affection, and their recovery from the diarrhea was therefore assured. The remaining forty-four patients were looked up by a visiting nurse; three had moved out of the city and could not be followed up, but the remaining forty-one were in good health.

The babies varied in age from six weeks to two and a half years, and the average period of time that the disease had lasted before treatment was one week; the shortest two days. The intestinal cases included four cases of enterocolitis and 113 of gastroenteritis, of which forty-seven only were mild and fourteen were toxic. The treatment consisted of the administration of a pure culture of the true *Bacillus lactis bulgaricus*—Type A, the organism of which was imported through the Johns Hopkins Hospital and elaborated in tablet form. One or two tablets were usually given every two or three hours, but in severe cases two or even three tablets were given every two or three hours before and after each feeding, making a total in some cases of forty-two tablets a day.

The details of the improvement are given, both as to gain in weight and other symptoms and the most impressive facts standing out in the results of this treatment are summarized by the author as follows: "1. The gain in weight, in spite of the number of stools. 2. The rapid change in color of the stools to yellow. 3. The rapid subsidence of fever. 4. Absence of mucus and blood from the stools at the end of forty-eight hours. 5. The fact that the hygienic surroundings of the patients and the degree of intelligence of the mothers had no influence on the results. 6. A starvation diet, accompanied by purgation, is productive of loss of weight and strength, and serves to prolong the course of the disease; and further, such a procedure can no longer be advanced as a rational method of treating infantile diarrhea. 7. The digestive powers in infantile intestinal conditions, even when associated with fever, are not so impaired as to prevent the digestion and assimilation of a milk diet. This fact is corroborated in typhoid fever where the high caloric diet, in contrast to the starvation diet, has reduced the mortality to a remarkable degree. Moreover, the cases herein recorded prove the value and rationale of continuing a milk diet in infantile intestinal conditions, as illustrated and emphasized in the diagram of weights. 8. In severe cases best results are obtained by administering a large number of the tablets during the first two or three days of the treatment. As many as forty-two bulgara tablets in twenty-four hours have been given to very young babies without untoward effects. 9. The implantation method of treatment has progressed beyond the experimental stage, and the results of its use can be no longer questioned or disputed. This treatment has been proved of practical, clinical and scientific value; and its simplicity

ty should appeal to every practitioner. 10. In order to secure the best results, in using the implantation treatment, a pure culture of the true *B. lactis bulgaricus* must be employed; otherwise, disappointment will follow.

"Bacteriologists recognize the fact that the same organism, isolated from different sources will vary in its virulence and in certain other characteristics; and the *B. lactis bulgaricus* is no exception to this rule. While similar organisms have been isolated from the soured milks of several eastern countries, namely, Russia, Egypt, Armenia, Syria, etc., yet the bacillus isolated from Bulgarian soured milk has been proved to possess the greatest antagonism to putrefactive bacteria. Moreover, in using a culture of this organism for implantation treatment, it is essential that the culture show only viable organisms and that these be present in sufficiently large numbers. Without doubt, it has been the lack of a pure, active culture of this bacillus in viable form that has been the cause of the indifferent results obtained in previous years with lactic acid bacterial therapy."—*Jour. A. M. A.*, July 19, 1913.

THYROID IN THE TREATMENT OF NEPHRITIS

J. F. Percy, of Galesburg, Ill., gives his further experience in the use of thyroid in the treatment of nephritis. In his former paper he describes the treatment from the point of view of the internist, and in the present one he calls attention to its probable value as a preparatory treatment for surgical operations in nephritic patients. He thinks it will be found to have considerable value in this way and reports two cases in which it was used successfully in nephritic patients suffering from hernia. In both cases the kidney disorder was cured. He also reports another case which he thinks suggests additional possibilities of value in thyroid, that is for the relief of non-obstructive post-operative suppression of urine. The patient had been operated on for stone in the ureter, suppression of urine occurred, and was resistant to the usual method of treatment. As regards the method of administration, small doses (two grains) are ineffective. His own rule is to give six two grain tablets a day for the first week and after that to increase it to ten a day. After the urine becomes normal he reduces the amount to four to six a day and gives these three weeks out of each month. Whether this is absolutely necessary he is not quite prepared to say. Most

of his early patients have not continued the treatment and have remained well. If the high-blood pressure persists, he follows the thyroid treatment with the persistent use of potassium iodide and nitroglycerin as mentioned in his previous article, and has seen it of benefit. He believes the use of dried thyroid gland is of value in the treatment of nephritic patients, surgical as well as medical.—*Jour. A. M. A.*, Aug. 9, 1913.

CHARACTER AND TREATMENT OF DIABETIC COMA

Of eighty-nine deaths in diabetics, seen by Rolly in the Klinik at Leipzig, 52 or 52.7 per cent. presented the picture ante mortem of diabetic coma. All were severe forms of diabetes, with large quantities of acetone and diacetic acid, and more than one-third of the number occurred between twenty and thirty years of age. Rolly discusses the theories of causation of the coma, which is by no means yet worked out, although the onset of coma is usually coexistent with the increasing quantities of acetone bodies in the urine. It is likely that the offending substance in the production of coma is beta oxybutyric acid, although experimentally this can not be proven because this substance is readily oxidized in the body of normal animals. Ehrman has recently produced coma in rabbits by a sodium salt of butyric acid, but this has not succeeded in dogs, and his conclusions of a specific butyric acid production of coma are not readily accepted.

The most interesting facts brought out by Rolly are the determinations of the reaction of the blood in diabetic coma. It has always been inferred that the condition must be an acidosis, and many observers have characterized the increased acid production as "alkali robbers," and designated the acidosis as the essential cause of coma. Rolly estimated the reaction of the blood by the electrometric method in eleven cases of coma. In but three cases was the blood acid in reaction; in six cases the alkalinity was lessened abnormally, but not more than is present in moribund cases. In one case of diabetic coma, twelve hours before death, the blood reaction was perfectly normal! Rolly, however, states in the three cases showing an acid reaction of the blood, the acidity may have played a rôle in the cause of coma, since in no other disease has he been able to show an acid reaction of the blood. This is rather startling information, since we hear so much of acidosis at the present time. But that all cases of diabetic coma are an acidosis is evidently wrong,

and he even goes so far as to examine other fluids of the body; for instance, the cerebrospinal fluid, which showed no abnormal reduction of alkalinity.

In discussing the formation of the *acetone bodies*, he repeats the fact that they are produced from the fats and proteids, when little or no carbohydrates are being oxidized in the body. He believes that carbohydrates should not be entirely withdrawn from the diabetic when there is much glycosuria and a very positive Gerhardt reaction. Since, with the intake of sodium bicarbonate, there is an increase of the acetone bodies in the urine and usually an improvement in the well-being of the diabetic, he believes that these bodies are more readily excreted by the urine when Na HCO_3 is taken. Sodium bicarbonate is, therefore, indicated in severe diabetes, and especially in the threatening coma, when it is to be taken by mouth, per rectum, and sodium carbonate is to be given intravenously. Other measures suggested for coma are large doses of castor oil, salt infusion, venesection, five per cent to ten per cent glucose infusion, oxygen inhalations, stimulants, including alcohol, as recommended strongly by Van Noorden, as well as the latter's suggestion of oatmeal cure if the patient is still able to take food by mouth. Rolly believes, however, that it is very rare, indeed, for the actual condition of diabetic coma to be relieved.—Lancet-Clinic, July 19, 1913.

SUGAR TO CHECK HEMORRHAGE

An intravenous injection of 200 Cc. of a 5 per cent. solution of glucose is recommended by E. Schreiber to check severe bleeding which cannot be managed by direct surgical methods. In severe cases, as in copious intestinal hemorrhage of typhoid, more concentrated solutions (20 per cent) of glucose may be employed to advantage. These infusions may be repeated as often as necessary and are not followed by a rise of temperature or other untoward signs if the ordinary precautions necessary for infusions are observed. The physiological effect is the same as that of hypertonic salt solutions which have been recommended for some time in severe bleedings. It seems that the tension of the blood in its relation to the tissues is so changed that a large amount of hemostatic ferment is given off by the latter. In hemophilic conditions, 200 Cc. of a 10 per cent solution has been injected by the author with good results. Instead of the glucose, cane sugar may also be employed. Glycosuria does not

occur unless the patient suffers from diabetes, when more care is necessary. Sugar solution is preferable to salt solution in many cases, since a certain amount of food is also introduced into the body.—Therap. d. Gegenwart, May, 1913.

ACTION OF DIURETICS IN HEART DISEASE

A general review of diuretics in cardiac disease is given in an article by A. D. Hirschfelder, of Baltimore, who takes up their use in five conditions: (1) infective endocarditis; (2) arteriosclerosis with periodic attacks of the various disturbances associated with localized arteriosclerosis, vertigo, headaches, transitory cardiac asthma or pulmonary edema, angina pectoris and vasomotor crises; (3) chronic or paroxysmal hypertension without edema; (4) acute cardiac overstrain, and (5) broken systemic compensation with chronic passive congestion, and edema with or without general anasarca, ascites, hydrothorax or hydropericardium, arising from myocardial weakness, valvular insufficiency or adherent pericardium. "The first of these need not be discussed as it should not be treated under the head of cardiac disease, but rather as a primary nephritis. In arteriosclerosis and chronic hypertension, one might be tempted to resort to diuretics to remove autotoxins or relieve plethora, but it is better in both these conditions to spare the arteries and kidneys from overwork and light diet and restriction from salt and water than to try to remove these substances with diuretics. Acute cardiac overstrain is a condition of transient duration when seen in athletes, etc., and can be generally left to cure itself. The chief condition when active diuretic intervention is advisable, is in broken systemic compensation with edema from stasis in the systemic veins, either from failure of the right ventricle, tricuspid-stenosis or adherent pericardium. The literature of this subject is reviewed in detail and Hirschfelder says, "Digitalis is the diuretic of choice in all cardiac conditions with failure of the circulation," and he shows how this is the case. In using it, it is important, as Pratt and Hale have insisted, to obtain a standardized preparation so that one can be certain he is giving an adequate amount of the drug. Other drugs of the digitalic group are mentioned, but it is a question, he says, whether any of them are more efficient. When we desire a more powerful diuresis we can make use of the purin or caffein group—caffeine, theobromin, or theophyllin. The phthalein test of

Rowntree is a simple, quick and easy method of determining the extent to which the kidney epithelium has been damaged or whether it would be too much fatigued by the use of these drugs. If the phthalein is low—30 per cent. or less in two hours—it would be better to rely on digitalis and try to improve the circulation before stimulating the kidney. The same precaution applies to the saline diuretics, though they are probably less irritant to the kidney, and the test is specially desirable when calomel is used as a diuretic. In general, we should aim first to know the exact state of the kidneys; second, to improve the circulation with digitalis or to spare it with the karell diet; and, thirdly, to resort to theocin or the saline diuretics to relieve edema if the renal epithelium is not severely injured.”—*Jour. A. M. A.*, Aug. 2, 1913.

TREATMENT OF PNEUMONIA

The apparently increasing mortality from pneumonia of late years is noticed by S. Solis Cohen, of Philadelphia, who calls attention to a treatment with a much reduced mortality, systematically carried out in two hospitals, the Jefferson and Philadelphia General Hospital. Apart from fresh air, dependence has been placed first on the effective use of massive doses of quinine. The most potent preparation, namely the very soluble double chloride of quinine and urea introduced intramuscularly in a 50 per cent solution. Second, the hypodermic injection of cocaine hydrochloride solution, or of an extract of the posterior lobe of the pituitary body for the maintenance of blood-pressure. Third, in cases of prolonged fever, delayed resolution or tardy convalescence, the injection of bacterins (pneumococcus or “mixed” vaccines, personal or stock) has been resorted to to expedite recovery and apparently with good result. Further experience is needed, however, before positive statements can be made. The details as to the administration of the remedies are given. The dosage of the quinine salt is from 15 to 25 grains and 15 grains every third hour after, till temperature falls and stays down below 102.2 F. One-half grain of cocaine hydrochloride or of caffeine (sodiumsalicylate) or 1 Cc. of pituitary liquid or 1 Cc. of the 1:1000 solution of the posterior pituitary principle is given with the first quinine dose and repeated likewise every third hour until the systolic blood-pressure curve in millimeters of mercury taken in the arm rises and remains above the curve representing curve frequency in beats per min-

ute. No invariable maximum limit has been fixed to the number of injections of quinine or pressor substances, but it has not been considered best to continue them beyond the first twenty-four hours and rarely as long as this. Where the desired effects have not been reached by that time, the interval between injections has been increased to six hours. In general the idea is to give as much quinine as can be borne in the first forty-eight hours and as little of the pressor drugs as is needed to maintain the systolic blood-pressure a safe distance from the pulse-rate. These directions apply to moderately strong adults and the good results are shown in three tables. Until recently this treatment was reserved for cases calling for active intervention and other patients were permitted to go without it. Statistics are based, therefore, on cases from the moderately severe to those of the very worst type. At present the author gives the first dose of quinine to every patient and the result has been that the cases have become so much milder that they require no further treatment beyond good nursing. As regards the duration of this treatment, the quinine is seldom continued beyond seventy-two hours and the number of injections ranges from one to fifteen and is ordinarily five or six, usually of about 1 Gm. each. The number of cocaine and pituitary injections ranges from one to twenty and will average three and four in each case and each case must be judged by itself. The only general rule is, enough to produce the desired effect and no more.—*Jour. A. M. A.*, July 12, 1913.

LUMINAL

F. J. Farnell, of Providence, R. I., publishes an account of two cases showing toxic effects of the new hypnotic, luminal (phenyl-ethyl-barbituric acid). In one, a young woman, aged 24, was given 0.3 Gm. of luminal, not to be repeated for forty-eight hours, which was ineffective in producing sleep as desired. She therefore took a second dose the next evening, twenty-four hours after the first, and slept very decidedly all night and until 10 the next morning. When awakening she showed symptoms of scanning speech, paraphasia, ataxia and astasia and a general somnolent tendency, all lasting about twelve hours. Her pupils were dilated and knee-jerks diminished. There were no disturbances of sensation. In the second case a man was given 0.6 Gm., and told to repeat in one hour with 0.3 Gm. Three hours later he was still awake and was given 0.2 Gm. of veronal.

He went to sleep about 4 a. m. and had to be awakened at 10 o'clock. He then showed the same symptoms as in the first case, if anything more marked, and also gastro-intestinal disturbances. This condition lasted for forty-eight hours, with long periods of sleep, when he gradually returned to normal. In an additional note attention is called to the large doses given as reported. In the first case equaling the maximum recommended and in the second exceeding it.—*Jour. A. M. A.*, July 19, 1913.

LACTIC ACID BACILLUS SPRAY

H. B. Wood, of Rochester, Minn., says that four cases of diphtheria in the Rochester State Hospital for the Insane occurred in January and February, 1913, which were promptly traced to a carrier—a kitchen attendant—after whose isolation no more cases occurred. After seven weeks treatment by various methods, of the healthy carrier, with still persistent positive cultures, nose and throat spraying with *Bacillus acidi lactic* was employed on the suggestion of Dr. A. H. Sanford, bacteriologist of St. Mary's Hospital, and in a week the cultures were negative and remained so. The method was next employed in four cases in May, 1913, and cultures became negative and the membrane disappeared in still shorter periods of time—three days. Wood offers these results to the profession rather guardedly and says it will be well for others to report their experience with the method, not only in the disinfection of carriers but also in the treatment of the disease. Perhaps the country physician away from the laboratory facilities may find some advantage in swabbing or douching the nose and throat with sour milk.—*Jour. A. M. A.*, Aug. 9, 1913.

ANESTHETIC ACTION OF POTASSIUM PERMANGANATE

In a preliminary communication, W. M. Barton, of Washington, D. C., reports his discovery of the anesthetic effects of potassium permanganate on the genito-urinary mucosa. He had observed that in irrigating subacute and gonorrheal urethritis that the primary sensitiveness following injection soon disappeared after the use of permanganate irrigation, and he therefore tried this treatment to reduce the sensitiveness prior to the passage of sounds in a case of stricture. This experiment showed that anesthesia of the mucous membrane of the urethra could be completely and satisfactorily produced by dilutions of potassium permanganate, 1 to 2,500, or 1 to 5,000, but failed

with higher dilutions. Experiments made on the external skin showed the substance entirely ineffective to produce desensitization, probably on the impossibility of its penetrating to the nerve endings. Such a method of producing satisfactory anesthesia of the mucous membrane of the urethra and bladder, without possibility of toxic results and simple in its application, should, he thinks, be welcome by those who are obliged to perform painful manipulations on these organs. He has seen no mention of the method in medical literature or heard of its use from his colleagues, many of them genito-urinary specialists.—*Jour. A. M. A.*, July 19, 1913.

EFFECTS OF NEOSALVARSAN

Reactions following the intravenous injection of neosalvarsan are in a great majority of instances due to bacterial or chemical impurities in the water used to dissolve the drug. G. L. Dreyfus therefore advises that the water be doubly distilled shortly before use. The apparatus should be made entirely of Jena glass without any metal and the condensor should be removed after eight to ten weeks. Distilled water is to be used in sterilizing the apparatus and the vein is punctured by means of a platinum iridium needle. When all these precautions were observed, a slight reaction was obtained in only 9 per cent. A good deal of confusion still exists as to the proper dose of the drug. The author generally uses two infusions a week of 0.6 to 0.75 Gm. until a total amount of 7.5 Gm. is injected and at the same time employs mercury in the form of inunction or injection. Toxic symptoms are exceedingly rare and are more often due to the water than to the drug. This applies particularly to the eruptions. It is best to begin with smaller doses, until the patient's tolerance has been tested. If a reaction occurs, two days without fever should pass before a second dose is injected. Arsenical polyneuritis is a very rare complication, but treatment should be interrupted with the first symptoms. The old salvarsan is in general more potent than neosalvarsan. The latter drug is particularly indicated in luetic meningitis, specific aortic changes and luetic, vascular processes in the brain and syphilis with non-specific nephritis. In the uncomplicated syphilitic affections of the central nervous system, salvarsan is to be preferred, since it is the more potent drug and has a more pronounced effect upon the sero-reaction. In some cases it may be desirable to use both drugs.—*Muench. med. Woch.*, March 25, 1913.

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PRESENTING A

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AUGUST, 1913

EDITOR'S NOTES

The Thyroid Gland

WITH few medicaments is there so striking a response as with the extract of the thyroid gland. This statement does not mean, of course, that in every case in which it is given it will bring about a cure, or indeed that in some cases it may not even work harm. Nor is it possible always to say in which cases it should be given. It has, however, been well demonstrated that in thyroid extract we have a most potent and valuable remedy, but one which should be given only with a full knowledge of its action as well as a careful study of the individual patient.

The whole subject of internal secretions and of hormone therapy is now receiving a great deal of attention and much valuable work has already been done. A recent issue of our esteemed and progressive contemporary, "The Prescriber," was devoted exclusively to the subject "Hormone Therapy" and in thus presenting at one time so many and instructive articles the editor has performed a valuable service.

One of the more interesting articles was that by Dr. H. E. Waller, who points out that one important function of the thyroid gland is to assist general metabolism. In myxedema, for example, the physiological expenditure of the resting body is only 50 or 60 per cent. of the normal. When thyroid substance is administered in these cases, metabolism rapidly increases and may

readily exceed the normal. A similar, but of course less marked, result is seen when thyroid extract is administered to healthy individuals.

Excretion of CO_2 is increased by 15 to 25 per cent. Increased decomposition of albumen occurs, involving increased excretion of nitrogen. There is a considerable increase of calcium eliminated in the feces, and a large amount of phosphorus is also carried off with the calcium. The phosphorus content of the urine, however, is lessened. The author also points out that thyroid extract has a marked diuretic effect. Many other clinical changes, directly or indirectly referable to thyroid activity, are well known to every observer who is familiar with Graves' disease. Emaciation, hunger, thirst, polyuria, glycosuria, diarrhoea, vomiting, sweating, and nervous symptoms, increased rapidity of pulse rate, and raised blood pressure, with correlated changes in the heart, are all symptoms which may be observed with varying frequency in different cases of Graves' disease, and which have likewise been produced by excessive thyroid medication. Thoughtful consideration of such various symptoms forces the conclusion that thyroid acts largely by its power of influencing other organs. Waller points out that the results will naturally vary according to the power of the other organs to respond to the stimulus. Thus some other dominant factor, obvious or obscure, may absolutely determine the final result. Herein lies the importance of knowing one's patient thoroughly, and mastering the little details which may point to the "dominant factor."

Morphine and Scopolamine as Aid in Anesthesia

If morphine and scopolamine are injected prior to a general anesthesia, the amount of anesthetic necessary can be much reduced, and it is possible to perform even big operations with a minimum amount of ether. H. Reichel points out, however, that scopolamine causes a marked depression of the respiratory centres and he warns against the use of the drug since quite a number of accidents have already been reported. The results are somewhat better if pantopon is employed in the place of morphine, but even here there is danger of respiratory collapse. The danger is most marked where there are disturbances of the respiratory organs, in advanced age and in patients already weakened by disease. Pantopon alone has been known to cause serious respiratory embarrassment. It is possible to perform even

larger operations with pantopon and scopolamine alone (0.04 Gm. pantopon, 0.0004 Gm. scopolamine injected one-half to three-fourths of an hour before the operation), but here there is the same danger. Much better results are obtained if the pantopon is replaced by narcophin, a meconic acid compound of morphine and narcotine, which exhibits the same pain relieving properties as morphine but influences the respiratory centre to a less marked degree. The dose of narcophin to be employed is about three centigrammes. — Muench. med. Woch., March 25, 1913.

Activity of Ergot

A. C. and J. P. Crawford, of Stanford University, Cal., have investigated the cock's-comb test of the activity of ergot preparations, that is, the bluing of the comb by injection of ergot, and report their experiments. These were made with various chemical constituents which have been suspected of activity in this complex drug. Those found active as regards this test are ergotoxin, beta-iminazolyethylamine, the last of which is probably always present with a positive test. It is interesting, they say, to note that this substance, which produces vaso-dilatation in carnivora and a fall of blood-pressure in cocks, and paralydehydrate, which in large doses also dilates the vessels, caused bluing of the comb. While, on the other hand, the vasoconstrictors, such as tyramine iso-amylamine and epinephrine, did not cause bluing, except the latter, and then it occurred late and after the vasoconstriction had begun to subside. If we accept the view that much of the pressor activity of ergot is due to parahydrophenylethylamine and that this pressor action has therapeutic value, and that this amine will produce uterine contractions, then it follows from our experiments that the cock's-comb test cannot be an accurate test for the full physiologic activity of ergot, but it may be of value for determining the presence of ergotoxin or beta-iminazolyethylamine. The question to be decided is whether or not we shall standardize for ergotoxin alone. This cannot be fully settled until we know more of the therapeutic value of the ergot constituents, and in what relative proportions they should occur. Fluid extract of ergot was tested many times on cocks, but bluing, as far as they remember, never immediately followed, which would indicate that it contained little if any beta-iminazolyethylamine, so that for practical purposes we probably have to consider only parahydrophenylethylamine and ergotoxin. The for-

mer has not been found to produce abortion in pregnant animals, so that if it is an intensifier of ergotoxin we have only the latter to consider in the essaying of the fluid extract. They conclude by saying: "Perhaps later experiments may show that we may be able to reach a satisfactory conclusion as to the full physiologic activity of ergot preparations by determining the nitrogen content of the alkaline-ether shaking."—*Jour. A. M. A.*, July 5, 1913.

Frequency of Eruptions After the Use of Balsam of Copaiba

W. Fischer reports upon the frequency with which eruptions were observed in the Clinic for Skin Diseases of Prof. Blaschko of Berlin after the use of balsam of copaiba for gonorrhea. The direct cause of this observation was the request of the Central Bureau of the Berlin Benefit Institutions for the Sick to employ balsam of copaiba in place of the more expensive preparations of the oil of santal. The after effects of balsam of copaiba had almost been forgotten because the preparations of the oil of santal have been used almost exclusively for the last 30 years. Prof. Blaschko and many other physicians therefore favored the more extensive use of balsam of copaiba. It was soon found, however, that, in fully 10 per cent. of the cases eruptions, generally with itching, appeared. Not rarely, there were also small petechiae which finally remained as brownish spots. The development of these blood extravasations indicates that the process is not an altogether indifferent one, for it proves that balsam of copaiba either damages the walls of the vessels or else induces hemolysis.

The author concludes as follows: "The question is whether these observations justify the further employment of preparations of balsam of copaiba or whether it is imperative to again resort to the oil of santal. The latter is also not free from slight after-effects, in the form of gastric disturbance and pain in the region of the kidneys. They are usually, however, so slight and infrequent that they need cause no alarm. With the most popular preparations, santyl and gonosan, they are still less frequent. According to my own experience, santyl is tolerated best of all. I have never seen eruptions after giving santyl or gonosan. If others confirm the very common idiosyncrasy of the skin toward balsam of copaiba it would be best to drop this preparation and again return to the preparations of the oil of santal."—*Med. Review of Reviews*, Aug., 1913.

Prescriptions

Tuberculosis:

Creosoti
 Acidi Carbolici Pur.
 Spir. Chloroformiāā f. 3ij
 Tinct. Iodi
 Spir. Aetherisāā f. 3jss

M. Sig.: Three or four drops in the inhaler, to be used three or four times daily for half hour at a time.
 —G. A. Wolfendale.

Migraine:

Sodii Bromidigrn. xij
 Antipyrinigrn. vij
 Tinct. Cimicifugæ℥xx
 Aquæad f. 3ss

M. Sig.: This dose to be administered twice a day.
 —Practitioner.

Chorea:

Acidi Acetyl-salicylici3ijss
 Gum Acaciæq. s.
 Syrupi Aurantiif. 3j
 Aquæ Chloroformiad f. 3iv

M. Sig.: A dessertspoonful every four hours for a child of six.
 —Allan.

Liq. Arsenicalisf. 3ss
 Tinct. Capsici℥xxv
 Ext. Glycyrr. Liq.f. 3ss
 Aquæ Chloroformif. 3vj
 Aquæad f. 3xij

M. Sig.: One tablespoonful three times daily immediately after meals for a child between 8 and 15 years.
 —G. Sharp.

Sodii Salicylatis3iv
 Ext. Cascar. Liq.f. 3j
 Elixir Simplicisad f. 3iv

M. Sig.: A teaspoonful three times daily for a child of seven.
 —Fromm.

Ammonii Bromidi3vj
 Tinct. Belladonnæ3iij
 Tinct. Cimicifugæ
 Aquæāā f. 3jss
 Syrupiad f. 3vj

M. Sig.: Two teaspoonfuls in water four times a day.
 —Swan.

Liq. Potassii Arsenitisf. 3j
 Tinct. Cimicifugæf. 3ij
 Tinct. Gentianæ Comp.ad f. 3iv

M. Sig.: For an adult one teaspoonful in water after meals. Run up dose of arsenic rapidly and cimifuga slowly.
 —Blair.

Zinci Valeratisgrn. viij
 Tinct. Valerianæ
 Tinct. Columbæāā f. 3ij
 Aquæ Aurantii Flor.ad f. 3viij

M. Sig.: For an adult one tablespoonful every six hours.
 —Neligan.

Sodii Salicylatis3ij
 Antipyrini3j
 Aquæ Menthæ Pip.ad f. 3iv

M. Sig.: Teaspoonful in water three times daily for children over ten years of age.

Sol. Potassii Arsenitisf. 3j
 Syr. Ferri Iodidif. 3j

M. Sig.: Ten to thirty drops in water three times a day, gradually increasing according to age.

Wounds:

In the following dressing, recommended by H. A. Royster, the sodium citrate prevents coagulation, while the sodium chloride produces irritation, both processes being desirable to insure efficient elimination:

Sodii Citratisgrn. ij
 Sodii Chloridigrn. xx
 Aquæad f. 3j

Prostatitis:

Ichthyolis℥v
 Olei Theobromatisgrn. xxx
 Pulv. Opiigrn. j

M. F. Suppos.

Sig.: After irrigation of rectum, introduce one such suppository twice daily.

Chancroid:

Zinci Stearatis
 Bismuthi Subnitratis
 Amyliāā 3j

M. Sig.: Apply to affected part.

Bubo:

Ung. Belladonnæ
 Ung. Iodi
 Ung. Hydrargyri
 Petrolatiāā 3ij

M. F. unguentum.

Sig.: Apply to swollen glands on lint.

Nervous Dyspepsia:

Elix. Cinchonæ, Pepsini, et Strychninæ, f. 3iij
 M. Sig.: Teaspoonful in water after meals.

Hysteria:

Ferri Valeratis
 Quininæ Valeratis
 Zinci Valeratisāā 3ss

M. Div. in Pil. No. xxx.

Sig.: One pill after each meal.

Oxyuris Infection:

Santoninigrn. xij
 Sacchari Lactisgrn. xxiv

M. Div. in Chart. No. xij.

Sig.: One powder after meals. To be followed by:

Quassia3j
 AquæOj

M. F. infusum.

Sig.: Inject one-half the quantity into the rectum daily.
 —Swan.

Infantile Diarrhea:

Magnesii Sulphatis3j-ij
 Mucil. Acaciæf. 3ss
 Phenylis Salicylatisgrn. v-x
 Glycerinif. 3iij
 Aquæ Chloroformiad f. 3iij

M. Sig.: One teaspoonful is given every one, two or three hours, sleeping or waking, vomiting or not. Glycerin is added when the urine is concentrated, and a little sweet spirit of nitre is given separately when this is very marked.

—H. A. Ellis.

Dipsomania:

Quininæ Sulphatis
 Zinci Oxidiāā grn. ij
 Strychninæ Sulphatisgrn. 1/40
 Acidi Arsenosigrn. 1/100
 Pulv. Capsicigrn. ij

M. F. pil No. j.

Sig.: One such pill three times a day.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Child Neuropathy and the Facialis Phenomenon.—Child neurasthenia is now recognized as of common occurrence and of probably increasing incidence. Neurasthenia in adult life is often but a persistence of it. We also see in childhood evidences of marked neuropathy which may not have culminated in any overt symptom of actual neurasthenia. The latter state is chiefly recognized by the presence of night terrors, bed wetting, nervous anorexia migraine, nervous coughs, etc.; but children may be intensely nervous, sensitive, excitable, irritable, restless, prone to habit spasms, and yet may show no actual evidences of nerve exhaustion. This type of child may perhaps be said to suffer rather from disorders of personality or disposition than from actual neurasthenia, and certain neurologists are at present in favor of separating anomalies of personality from all other psychoneuroses, if for no other reason than the relative impotence of therapeutic measures in this class. It is best, perhaps, to limit the expression child neurasthenia to the more objective phenomena, and it is quite conceivable that such neurasthenics need not present marked alterations in disposition.

At a recent meeting of the Royal Imperial Society of Physicians of Vienna, Hochsinger reported the results of an attempt at finding a simple criterion of the neuropathic constitution. He tested one hundred and seventeen children for Chvostek's sign, and obtained it in one hundred and one. Aside from children with the evidences of neurasthenia indicated above, the material included epilepsy, hereditary syphilis, Mongolian idiots, myxedematous children, and excitable idiots. The age limits were four and twelve years. The symptom in question was comprehended as a sudden twitching of the lip and cheek muscles upon percussion over branches of the facial nerve. This symptom was present in a very large percentage of each type of child investigated, although in but three out of eight epileptics. It was found that many of these children had been under treatment during the nursing period for eclampsia or other evidences of spasmophilia, and that Chvostek's sign had also been obtained at this period. Hochsinger was also able to test many of the mothers and obtained the sign in 60 per cent of these. He also found that while in male children the phenomenon could not as a rule be induced after the age of fifteen, it persisted indefinitely in girls, sometimes even to the menopause. The fathers of these children seldom showed evidences of neuropathy. He differs with Chvostek as to the thyroid or parathyroid origin of the phenomenon.—*Med. Record.*

A SUPPURATING PERINEAL DERMOID CYST may discharge through the scrotum or at the peno-scrotal angle, suggesting a peri-urethral abscess.—*Amer. Jour. Surg.*

Selective Breeding.—Since we already possess biologic knowledge enough to accomplish wonders in practical eugenics, why should we wait till some future day to get results? We must make a beginning with the material we have and under the conditions of human life as we find them. Many valuable mutations are lost, as no effort is made to preserve them. We must improve on the present go-as-you-please or haphazard program by introducing the biologically controlled or scientific program. How shall we keep up the selective process from generation to generation? Who shall do the selecting and how shall they be controlled? We spend millions of money and aeons of time in education and in ameliorating the conditions produced by our faulty genetics! Can we avoid this excessive drain on our resources, energy and time? It is certain that we can if we will! In our community life there are hundreds of inhibitive regulations controlling our daily actions—how we shall live, move and have our being, but not a single generally recognized rule for the control of the quality of coming generations! In this and other times economic and religious associations have in many places started pro- and anti-eugenic movements as secondary features of their programs. We have all heard of bachelors' clubs and old maids' societies. Royal families and others for a variety of reasons restrict marriage of their members to consanguineous or other selected individuals for dynastic, financial or other social reasons. These prohibitions and selections have their eugenic effect—or anti-eugenic effect, and we are so accustomed to them that we take them as a matter of course. They are a part of the social order in which we live. It is also common knowledge that royal families, e. g., in the course of generations "run out" or even become extinct. The reason is not far to seek. They practice selective mating but do not select eugenically—they interbreed defects—and the defects by cumulative poisoning or disintegration kill the stock. Suppose a group of eugenically fit individuals, selected for preponderating brain capacity, were to mate within the group—and for generations thereafter their descendants, such as were fit and up to the standard, together with such additions as were made to the group from time to time, followed the custom of seeking their mates within this selected group. Would not the genetic result even in a few generations be an improved race of humans? There can be no doubt of it. All this could be accomplished without interfering with the other affairs of life except such as might be non-eugenic in their character. Business, social and civic duties within the commonwealth would remain undisturbed. The group would not be set apart from the community, but would soon be set over the community, as a result of the persistent breeding for brains and other good qualities! Such a social group would in no way interfere with romantic love and initiative or anything else that was not anti-eugenic. We hear much talk about the conservation of natural resources—but all the economists have left the egg out of the omelette! The greatest natural resource of humankind is man himself and we can save

more money, time and energy not to mention more important things, by breeding human beings fit and sound with larger brain for the mastery of the present and future problems, than by any other plan of conservation whatsoever!—Lancet Clinic.

A Quantitative Test for Formaldehyde in the Urine.—Frank Hinman, of Baltimore, writes that of the many quantitative tests for formaldehyde none had been applicable for an estimation of the drug in the urine because of the associated presence of hexamethylenamine. This latter substance readily broke down under certain conditions of temperature, acidity, etc., into ammonia and formaldehyde. It was in an effort to control the variable results obtained with the qualitative Rimini test that a rough scheme of quantitative estimation had been evolved. The directions for the Rimini tests as used by Burnham were as follows: To 10 Cc. of the specimen are added three drops of a 5 per cent phenylhydrazine hydrochloride solution, and then three drops of a 5 per cent sodium nitroprusside solution; then add two or three drops of a strong solution of sodium hydroxide or as sufficient quantity to make the liquid alkaline. A blue color develops in the presence of traces of formaldehyde. In the preliminary work with this test it was early seen that to obtain a characteristic reaction there was needed a definite proportion of test drugs to the percentage of formaldehyde present. In order to definitely determine this relation known dilutions of formaldehyde in fresh urine of from 1 to 5,000 to 1 to 100,000 were made up and tested with varying known dilutions of the test solutions. For a characteristic reaction was taken the appearance of a dark blue or purple cloud on the addition of the alkali.—Boston Med. & Surg. Jour., July 31, 1913.

Chronic Urethritis.—S. H. Likes and Herbert Schoenrich, of Baltimore, report their further experience with a form of chronic urethritis of non-gonorrheal origin and due to granulations in infiltrations of the anterior urethra. They speak first of the mental attitude of patients suffering from genital disease and say that while most patients follow a safe and sane course, carrying out the instructions of their physicians, there are others over-nervous and objectionably meddlesome in their own cases and still others, the reckless and negligent ones, who will not carry out systematically any treatment advised to its proper end. In any case, the first thing to determine is the underlying cause and especially if it be the gonococcus, for which all the known reliable tests should be employed, including the complement-fixation test. When non-gonorrheal, the discharge may be due to various causes—bacteria, prostatic conditions, rheumatism, bladder disease, syphilis or gripe, and lastly, to granulations or infiltrations of the urethra, which, in the experience of the authors, outnumber all the others in the list. This type was first described by Otis and Overlander. The usual symptoms consist in nothing more or less than a purulent drop collecting at the meatus from time to time, causing a little pain but very much anxiety in many cases. When a thorough examination has proved the absence of gonorrheal organisms or other infections and any involvement of the posterior

urethra, prostate, etc., we may be certain that the focus is in the anterior urethra. This must be found by the introduction of an aboule of sufficient caliber to stretch the urethral wall so that the granular and infiltrated areas may be felt as rough spots or absolute obstructions. To demonstrate these lesions requires instruments of larger caliber than commonly used. The one thing likely to interfere with their detection, is a too small meatus, and they refer to their previous article, in which their operation of meatotomy was described, consisting in suturing the edges of the skin and mucous membrane on either side of the median side of the incision on the floor of the urethra. The treatment they advise for the removal of these infiltrations is dilatation by aboules of gradually increasing caliber and ironing out the rough areas with gentle massage made painless by the introduction of cocain in the passage. They say one can feel almost certain that with the proper degree of stretching, varying with the individual, a cure will result if the treatment is carried out to a sufficient extent to restore all parts of the anterior urethra to its normal caliber. The intervals between the treatments and the selection of the proper sized bougie depend wholly on the amount of reaction shown by bleeding and pain since the previous treatment. Their results have been so uniformly gratifying that they desire to call the attention of the profession to this method of treating a very obstinate and troublesome disorder.—Jour. A. M. A., June 21, 1913.

Pompholyx.—The various views as to the histopathology of pompholyx are reviewed by R. L. Sutton, of Kansas City, Mo. He remarks that, in spite of the evidence that he adduces of other investigators, many experienced clinicians still hold to the sweat duct origin of the condition. During the summer of 1912 he observed a number of cases and selected nine of them for study. Of these seven submitted to having specimens removed from the lesions and subjected to biopsy. The bits of tissue were removed under local anesthesia with a medium-sized cutaneous punch, and immediately placed in a 4 per cent aqueous solution of formalin. One of the specimens from case one was frozen and eighty-four sections cut from it; the others were passed through the usual solutions, mounted in celloidin or paraffin and cut serially. The greater number were stained with hematoxylineosin, though a few Weigert and Gram-Weigert preparations were made. In all, 2038 sections were made. The findings correspond in almost every respect with those of Robinson, Santi, Williams and Breda. In only two was there any visible connection between the vesicles and the ducts and in these the coil glands and lining of the lower portion of the ducts showed no inflammatory or degenerative changes, the sweat involvement seemed purely accidental and there was no change in the lesions under treatment by pilocarpin for forty-eight hours. He concludes therefore: "The pathologic changes in pompholyx are confined almost wholly to the prickle-cell layer, only a slight perivascular infiltration being present in the derma. The coil glands are not involved, and the ducts are implicated only by accident. At bottom, the condition is very probably a neurosis, the direct exciting cause being a toxin other than locally microbic in origin."—Jour. A. M. A., July 26, 1913.

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PORK OR MUTTON?

A Britisher visiting this country avers that he can never accustom himself to the free and easy manners of the waiters he has encountered in American hotels.

"In Chicago," says he, "I met the most extraordinary types. I said to one:

"Waiter, is this a pork chop or a mutton chop?"

"Can't you tell by the taste?" asked the waiter.

"No," said I.

"Then," said my waiter, "what difference does it make which it is?"

THE INTRAUTERINE RECOGNITION OF SEX.—Pan-kow (Ztsch. f. Geburtsch. u. Gynäk.) presents a study of attempts to differentiate the sex of the fetus in the last month of pregnancy, which is based on the supposition that the embryonic testicles, being glandular organs, secrete substances which may be demonstrated in the blood of a woman pregnant with a male fetus. The absence of this reaction would then tend to show that a female child was present. For this purpose the author employed the precipitin reaction which is based on the fact that the blood serum of experimental animals previously treated with vegetable or animal albumin, developed specific reaction products (precipitins), which when brought together with the albumin solution already employed gives rise to a precipitation. He first attempted to demonstrate whether with the aid of the testicular extract, differences could be shown between the male and female blood. It seemed as if the testicular juice when brought in contact with the blood serum of the same species resulted in a precipitation, and it was also found that the serum of a bull produced a more marked reaction than that of a cow. In another series of experiments made with guinea-pigs the intraperitoneal injection of testicular juice resulted in the death of the animals within twenty-four hours, owing to the toxic action of the same, but in every case where the animals were injected with material which had been previously inactivated, a marked lowering of the temperature occurred but otherwise there was no change. The author formulates his results as follows: Foreign testicular substances when injected intraperitoneally manifest an extraordinary effect on the animal organism. The toxic action is produced by the complement which, however, may be obviated by inactivation. By preliminary treatment with normal as well as with inactivated testicular substance, antibodies are formed in the blood of the experimental animal which produce precipitation with those of the serum of the first variety. The production of antibodies which are specific only against the serum of the bull, by producing treat-

ment with testicular substance, has thus far not been possible. It is noteworthy that the direct contact of a solution of testicular juice with bull serum brings about a delayed, but well-marked reaction. Anaphylaxis is entirely without results in the attempt to differentiate sex by the blood. Although the author's experiments are generally negative in their results, he believes that this is due to the fact that our methods of differentiating albumins are not sufficiently developed, but that when this is attained the difference in sex may probably be determined in the manner indicated.—Charlotte Med. Jour.

HOMOSEXUALITY.—A. A. Brill, of New York, says that of late years he has become convinced that a great injustice is done to a large class of human beings, most of whom are far from being the degenerates that they are commonly believed to be. How large this class is, he cannot positively say, but there are thousands, he thinks, in New York, and that it is not confined to cities, but that it is ubiquitous and its occurrence is regardless of conditions of enlightenment or race. He agrees with Bloch that it is perfectly consistent with physical and mental health. There may be some congenital invert, but in the cases observed by him he has always discovered one or more early effective sexual impressions favoring the development of homosexuality. It takes weeks and months, however, before these can be discovered. He rejects the theories of hermaphroditism and of secondary and tertiary sex characteristics as the cause, as well as the bisexual theory of Ulrich. The diagnosis, strange to say, is not always easy and should be based on the somatic and psychic elements of the case, especially the latter. Dreams are an excellent aid but are not altogether to be depended on. As we are dealing with the psychic manifestation, the hope for a cure lies in psychotherapy. Hypnotism has disappointed expectation and he cannot speak from experience as regards Moll's association therapy, which consists of a methodic development of the normal and the methodic suppression of the associations. Brill uses psychoanalysis solely and has had gratifying results. It has besides "the advantage over other psychotherapeutic means in so far as it enters into the deeper mechanism of the phenomena, and although we have not yet a full explanation of the origin of inversion, it has revealed the psychic mechanism of its genesis and has essentially enriched the problem." Brill reports three of his cases which he thinks bear out his ideas on the subject.—Jour. A. M. A., Aug. 2, 1913.

MAY EVERY DYSPEPTIC EAT OYSTERS?—In another month the oyster will have concluded his domestic duties, started his immense annual progeny on a career, and be ready once more for the martyrdom of the dredge. It is popularly supposed that the oyster digests himself in the human stomach owing to the great size of the liver which is crushed as mastication begins and is thought to discharge its digestive juices freely over the remainder of the fish in a sort of glorious self-immolation for the benefit of happy mankind. As the oyster, moreover, contains some ten per cent. of extremely assimilable protein together with phosphorized fats and glycogen, it is evidently an excellent food, and it has always been freely administered to convalescents, while dyspeptic *bons vivants* have never hesitated to eat it abundantly, however dubiously they may have regarded the rest of the menu. The salt

contained in the oyster and the lemon juice in which it is usually served are stimulating to the gastric mucosa. Pron, in *Journal des Praticiens* for March 22, 1913, expresses the opinion that the oyster may be allowed, therefore, to those dyspeptics whose gastric functions are deficient, in anorexia, gastric atony, ulcer and incipient cancer, and to convalescents from acute disease, as they are likely to improve the appetite and to excite the stomach to increased motor and chemical activity. But to the large number of dyspeptics whose stomachs are hyperacid or hypersensitive, Pron would forbid the oyster as well as all other stimulating foods, restricting them largely to the less sapid ailments which are not so likely to cause irritation in their particular case. In many of these dyspeptics the gastric secretion is already sufficient, and it is then necessary and unwise to increase it.—*American Medicine*.

A funny old bird is the pelican
His bill can hold more than his belican;
He can tote in his beak
Enough food for a week.
But we don't understand how the helican.

THE THYROID GLAND IN INFANCY.—Perhaps there is nothing in medicine that is more interesting or that better shows how our knowledge has been brought together little by little than the history of our knowledge of the thyroid gland. Much that was learned became lost and had to be rediscovered. Conjecture upon conjecture was overturned to give way to beliefs a little nearer the truth. It shows that medicine has progressed aside from the laboratories which have to do with germs and parasites, and brings forth evidence very disconcerting to the antivivisectionist. As long ago as 1857 our scientific knowledge of the thyroid began when Schiff discovered the results which followed its removal and learned how to prevent these results by transplanting another thyroid gland into the peritoneal cavity of the animal. His work was soon forgotten and books continued to give for the existence of the gland explanations which now appear ridiculous. It was not until the late 70's that the "cretinoid state supervening in adults," as described by Gull, was discovered to be associated with atrophy of the thyroid gland. A few years later

the surgeons recognized the chain of symptoms following total extirpation of the gland for goiter. Then it was that Sir Felix Semon pointed out that cretinism and myxedema of adults are identical and probably due to the same cause. This suggestion of Semon's was taken up in an organized investigation by the Clinical Society of London with Sir Victor Horsley in charge of the experimental work. He, quite independent of Schiff's long-forgotten work, recommended the grafting of thyroid as a method of treating myxedema in man. His suggestion was followed up by some surgeons and it was noted that the patients' condition improved immediately. It was this immediate occurrence of the improvement that led Murray to treat a myxedematous patient by hypodermic injections of an extract of the thyroid gland of a sheep. This proved to be a remarkable discovery and was soon enhanced by the further discovery by others that just as good results followed the administration of the extract by mouth.

At the same time that this good work was going on Gley rediscovered the parathyroid bodies which had been described ten years before by Sandström. It was because of ignorance of the physiology of these bodies that the surgery of the thyroid was unsuccessful for many years. From the results of experimental extirpation of the thyroid gland in animals it was held for a time that the thyroid was of less importance to herbivorous animals than to carnivorous animals. This was because one pair of parathyroids in herbivorous animals is situated much lower and hence escaped removal. A wonderful amount of experimental work was carried on to learn more about thyroid and parathyroids. All experimental work was soon somewhat checked, however, by the discovery of accessory thyroid gland tissue and accessory parathyroid bodies whose presence or absence could not be ascertained without an almost illimitable amount of work.

There is a recent contribution which may be turned to some practical advantage. S. Simpson (*Jour. of Exp. Physiol.*, Vol. VI, No. 2) has shown that age is an important factor in the effects which follow thyroidectomy and parathyroidectomy in the sheep. Simpson found that cretinism followed extirpation of the glands only in very young sheep. The practical bearing of

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this is that the thyroid is of the greatest importance during infancy and that if cretinism is to be properly treated it must be recognized early and treated immediately. His success in causing such well-marked cretinism is no doubt partly due to using lambs born of thyroidectomized ewes. There are many things which point to the relation of the thyroid to the reproductive system. In fact, in some of the lower forms of animals the probable analogue of the thyroid discharges its secretion directly into the uterus. Cretins are sterile. The reason why thyroidectomized animals may become pregnant is because of the accessory gland tissue or the well-known compensatory hypertrophy of similar tissue in the pituitary gland. The production of cretins of these lambs from thyroidectomized ewes recalls the heredity factor noted in Switzerland where goitrous parents are apt to beget cretins. This should serve to put us on our guard in observing the infants born of mothers with diseased thyroid glands. Cretins are rare, but if they are to be prevented treatment must be begun very early.—*Med. Record*, July 26, 1913.

APE-OLGY.

Said an Ape to a Professor of Anthropology,
"May I rise to a question of etymology:

If a Simian is an anthropoid,

However can a man avoid

The converse of this relation in onomatology?"

Now, the Professor remembered his laryngology,
And, replying, said, "I like your neurology!

As a square is to a parallopiped,

So a quadru-man is to a biped;

Which proves your conversation is fol-de-röl-ogy.

Yet the Ape pursued his dialectic homology,

"I think that you owe me an apology—

The more a man like another gapes,

The more it is said he 'apes,'

So you see I am right by-gology!"

But the Professor objected to this kataratology;

"No imprecations can reverse an epistemology,

Nor can usage onomatopoeitic

Make a man truly ape-ologetic—

For that is contrary to all natural teleology!"

—*Pacific Med. Jour.*

DIET AND INTELLECT.—The connection between diet and intellect, or, rather, the influence of diet upon the mental forces, would appear at first sight to be more or less obvious. Spare living and hard thinking were thought to be almost synonymous terms and to some extent experience seems to have borne out the truth of this dictum. Many men and for the matter of that, women, have done their best brain work when insufficiently fed and clad, and the remark applies especially to inventors. It used to be thought that fasting purified the spirit and made the intellect clear. This view, however, as have many of the old-time ideas, has been relegated to the limbo of exploded notions, and it is held now that while fasting may purify the spirit, the effect that it has on the intellect is not altogether of a satisfactory nature.

Undoubtedly overeating has an injurious effect on the mental powers, but, on the other hand, fasting does not strengthen them. Overeating has a tendency to cloud mental agility, but perhaps fasting attenuates the fac-

ulties of the mind. The old axiom that "what's one man's meat is another man's poison" holds good with reference to mind as to the body. The amount of food necessary to keep body or mind in fit condition varies with the individual and, of course, no hard and fast rule can be laid down. The quality of the food requisite to ensure a healthy state of body or mind is dependent upon such a large number of circumstances that it would be absurd to dogmatize on this point. Bacon believed that what a man liked was good for him to eat, and there is a solid foundation for this belief.

Vegetarianism may suit some people, but it will not suit the bulk of mankind, nor can this latter statement be discredited, although it may seem to be disproved by laboratory experiments. Time was when it was taught that fish had an excellent effect on the brain, but this superstition has died out.

Possibly, nay probably, we all eat too much, and this is certainly true of the inhabitants of cities who, for the most part, lead a sedentary life. Yet there are no sufficient data to justify the assertion that there is an intimate relation between a sparse diet and intellect. Judging, indeed, from examples taken from life, it would appear that men of genius or of commanding intellect have differed as much in the matter of diet as have beings of more common clay. Some of the giants of literature or of other branches in which conspicuous intellect has shone, have been also trenchermen of no mean powers. Walter Scott, Goethe, Luther, Charles V., Dr. Johnson were all big eaters. The great lexicographer, as was his wont, discoursed to Boswell sapiently and weightily on the subject of eating and, according to his faithful biographer, carried precept into practice with an unflinching and vigorous regularity. So much so, that in polite society at least he must have been regarded as a glutton. Napoleon ate very fast, a habit which caused him much suffering, and may have been, at any rate, partly responsible for his end. The little corporal's table manners were as bad as those of Johnson, for he was frequently in such a hurry to get done that he would use his fingers in place of fork or spoon. His tastes in food were catholic but he had an especial liking for Italian macaroni and Parmesan cheese, and highly esteemed the red mullet of the Mediterranean. He must have been the despair of his cook, as he took his meals at any time of the day or night. At night food was always kept ready for him, he evinced a great predilection for ices which, together with coffee with cream chocolate and champagne, he would consume at a late hour.

Many great men have suffered from indigestion, due to some extent, no doubt, to errors of diet. The influence which indigestion has exerted on the course of events cannot be computed. Battles have been lost, crimes committed and the pen has been imbued with venom and deadly satire mainly owing to the fact that great men like ordinary mortals have possessed weak stomachs and have indulged not wisely but too well in the pleasures of the table. Carlyle's caustic comments on mankind and on things in general may be attributed to lack of restraint in

eating favorite viands, while who knows but that Voltaire's and Heine's vitrolic writings may be set down to the same cause.

Naturally genius acknowledges no laws as regards eating or anything else. Thus the eccentricities of genius have been manifested in eating as in other acts.

There is no testimony to show that great brain-workers have not been, as a rule, hearty eaters; in fact, evidence points the other way. Poets, as a class, seem to have been small eaters, in keeping with their wooing of the muse. But it may be that poets have been only apparently small eaters, and when in the seclusion of their homes have made up for their abstinence outside. Tennyson was an enthusiastic votary of the soothing weed and a great lover of port wine, while Swinburne is said at times to have indulged freely in plebian beer and gin.

Fasting does not make a great man, but in some instances it may help to mar him. Moderation in all things is as fitting a motto for great men as for the common herd. Great men, generally speaking, are less likely to be bound by rule and routine than ordinary individuals and this applies to eating and drinking.—Dietetic and Hygienic Gazette.

A "POSITIVE" BLOOD CULTURE in a case of otitic or mastoid disease is pathognomonic of sinus involvement and an absolute indication to tie off the internal jugular vein.—Amer. Jour. Surg.

A LEGACY IN WHICH WE ALL SHARE.—In the pocket of an old, ragged coat belonging to one of the insane patients of the Chicago poorhouse, there was found, after his death, a will. The man had been a lawyer, and the will was written in a firm, clear hand on a few scraps of paper. So unusual was it that it was sent to a lawyer; and so impressed was he with its contents that he read it before the Chicago Bar Association, and a resolution was passed ordering it probated. And it is now on the records of Cook County, Ill. And this is the will of the old, insane patient of the Chicago poorhouse:

"I, Charles Lounsberry, being of sound and disposing mind and memory, do hereby make and publish this my last will and testament, in order, as justly as may be, to distribute my interest in the world among succeeding men.

"That part of my interests which is known in law and recognized in the sheep-bound volumes as my property, being inconsiderable and of none account, I make no disposition of in this, my will. My right to live, being but a life estate, is not at my disposal, but, these things excepted, all else in the world I now proceed to devise and bequeath.

"Item: I give to good fathers and mothers, in trust for their children, all good little words of praise and encouragement, and all quaint pet names and endearments; and I charge said parents to use them justly, but generously, as the needs of their children shall require.

"Item: I leave to children inclusively, but only for the term of their childhood, all and every the flowers of the fields and the blossoms of the woods, with the right to play among them freely according to the customs of children, warning them at the same time against thistles and thorns. And I devise to children the banks of the brooks and the golden sands beneath the waters thereof, and the odors of the willows that dip therein, and

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the white clouds that float high over the giant trees.

"And I leave the children the long, long days to be merry in, in a thousand ways, and the night and the train of the Milky Way to wonder at, but subject, nevertheless, to the rights hereinafter given to lovers.

"Item: I devise to boys, jointly, all the useful idle fields and commons where ball may be played, all pleasant waters where one may swim, all snow-clad hills where one may coast, and all streams and ponds where one may fish, or where, when grim winter comes, one may skate, to hold the same for the period of their boyhood. And all meadows, with the clover blossoms and butterflies thereof; the woods with their appurtenances; the squirrels and the birds and echoes and strange noises, and all distant places, which may be visited, together with the adventures there found. And I give to said boys each his own place at the fireside at night, with all pictures that may be seen in the burning wood, to enjoy without let or hindrance or without any inconvincence or care.

"Item: To lovers I devise their imaginary world with whatever they may need, as the stars of the sky, the red roses by the wall, the bloom of the hawthorn, the sweet strains of music, and aught else they may desire to figure to each other the lastingness and beauty of their love.

"Item: To young men, jointly, I devise and bequeath all boisterous, inspiring sports of rivalry, and I give to them the disdain of weakness, and undaunted confidence in their own strength. Though they are rude, I leave to them the power to make lasting friendships and of possessing companions, and to them exclusively I give all merry songs and grave choruses to sing with lusty voices.

"Item: And to those who are no longer children or youths or lovers, I leave memory, and bequeath to them the volumes of poems of Burns and Shakespeare and of other poets, if there be others, to the end that they may live the old days over again, freely and fully without tithe or diminution.

"Item: To our loved ones with snowy crowns, I bequeath the happiness of old age, the love and gratitude of their children until they fall asleep."
—Barbara Lloyd.

BECK'S BISMUTH PASTE will sometimes cure a persistent narrow empyema sinus, but it cannot cure a persistent empyema cavity, and in such cases it is very apt to cause serious or fatal bismuth poisoning.—Amer. Jour. Surg.

THE SOLDIER'S FOOTGEAR.—Napoleon used to say that an army marched on its belly. That is an epigram; but it is not a mere truism to say that it marches on its feet. Readers of "My Lord the Elephant" will remember Mulvany's deliverance on the vital importance of sound feet to a soldier. "At the very beginnin' av the marchin'," he says, "I wint sick like a fool. I had a boot-gall, but I was all for keepin' up wid the rig'mint and such like foolishness. So I finished up wid a hole in my heel that you cud ha' druv a tent peg into. Faith, how often have I preached that to recruits since, for a warnin' to thim to look afther their feet! Our docthor, who knew our business as well as his own, he sez to me, in the middle av the Tangi Pass it was: 'That's sheer damned carelessness,' sez he. 'How often have I told you that a marchin' man is no stronger than

his feet—his feet—his feet!' he sez. 'Now to hospital you go,' he sez, 'for three weeks, an expense to your Quane an' a nuisance to your counthry. Next time,' sez he, 'perhaps you'll put some av the whisky you pour down your throat, an' some av the tallow you put into your hair, into your socks,' sez he. Faith, he was a just man." He was also a man of sound practical sense. In the report of the Surgeon-General of the United States Army for the fiscal year which ended on June 30th, 1912, it is stated that the American military authorities are now fully convinced of the necessity of having military shoes made on a correct last and properly fitted. The marching shoe now in use has been reported on adversely by various surgeons. The majority of them report (a) that the toe of the shoe is too low; (b) that the toe of the shoe does not properly protect the toes of the foot; (c) that the width of the shoe is too great for the length, and hence, if a shoe is long enough for the foot, it is too wide; and (d) the instep is too low. This question has been under consideration for several months by a board at Fort Leavenworth, with Major E. L. Munson, Medical Corps, as president. A great many radiographs have been made of feet with shoes of various patterns and without shoes. These radiographs show that the feet of practically all adults are deformed from wearing shoes made on an improper last. The board suggested that a number of shoes should be made on a set of lasts recommended by them, and that a practical test be made of these shoes under the supervision of the board. This was done. A command of 379 men were properly fitted with

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these shoes, under the supervision of the board, and went out on a practice march of 117 miles, occupying nine days. Careful notes were kept and examinations made both by inspection and x-ray. It is believed that a satisfactory field shoe has been devised as the result of the work of this board. The report adds that the recommendations of the board with regard to fitting are very practicable, specifying the method of fit, and providing that the fitting of shoes shall be personally supervised by an officer. The suggestion is also made that officers should be given a course of instruction in care of the feet, including the fitting of shoes. Captain Weed, of the Medical Corps, in a special report on feet and footwear, points out that the fitting of the socks is a matter of great importance. A pair of socks of improper size may cause almost as much injury as shoes of improper size. This seems very sensible. It is refreshing to learn that military authorities are now ready to give attention to advice on such humble necessary details.—Brit. Med. Jour.

WHEN BISMUTH PASTE is used in any considerable quantity (an ounce or more) for x-ray diagnosis it should be promptly washed out of the wound with olive oil, to avoid poisoning.—Amer. Jour. Surg.

AN UNUSUAL TYPE OF CONSUMPTIVE.—If a man obviously weighing over 225 lbs. were to invade your office and begin his history by stating that he had been under treatment for pulmonary tuberculosis for some years and desired an examination in order to determine if he was quite out of danger, would you at once set him down as a psychic case, or would you gravely begin the physical examination? You might find a hyper-resonant chest and few other physical signs of disease, save possibly a dilated heart. Yet, as Dr. Edgar Hirst pointed out recently to the Academy of Medicine of Paris, general emphysema is one of Nature's common means of defense against pulmonary tuberculosis. Unfortunately it is not always successful; and intercurrent disease, excessive fatigue, lack of proper food, or other depressing factor may cause the reappearance of the Koch bacillus with signs merely of bronchial asthma or chronic bronchitis. The patient then becomes a source of danger to all about him; ignorant of his condition and suspected of nothing more serious than the bronchial disturbance, he sows freely in every direction his deadly bacilli. In treating a case of emphysema hereafter, one should never take it for granted that the case is as simple as it looks, but undertake a most careful examination in order, if possible, to tear the mask from a possible tuberculosis.—American Medicine.

THE PERINEAL ROUTE is to be preferred for the removal of the cancerous prostate.—Amer. Jour. Surg.

RECURRENT VARIOLA.—E. F. Cody, of New Bedford, Mass., describes a case of second attack of smallpox that deserves recording. The author remarks that there are but few references on the subject to be found.

According to Marson, during the one hundred and nineteen years since the founding of the London Smallpox Hospital not a single instance has been recorded of a patient being admitted with smallpox a second time. Although Baumler, "In the smallpox hospital in

London, from the years 1836-1851, among 5797 cases, 47 cases occurred, therefore, less than one per cent of second attacks."

MacCombie writes, "I have not seen an attack of smallpox in any person who bore unmistakable evidence of having had smallpox." Immermann, "Rarest of all, without doubt, are the true relapses, but such are really now and then observed. Somewhat more frequently, though rarely enough, second attacks occur, between which and the first attack (experienced in youth) a series of decades usually intervenes. Aitken quotes a case reported by Roupel of three attacks, a lady of M. Guinet, who had it five times; a case of Matson of seven attacks; and one by Baring, a surgeon attacked on every attendance upon a case.

All agree that a second attack is mild. The classical case of Louis XV of France, who had an attack of the discrete form at the age of 14 and succumbed to confluent smallpox at 64, is the familiar exception.

The following is the case report:

B. P. F., age 50; had discrete smallpox at age of four; in proof of which many typical scars are to be seen distributed generally over the trunk. When mustered into the Federal service as a member of the local company Massachusetts Coast Artillery, at the beginning of the Spanish War, the medical officers verified his statement on physical examination and exempted him from the customary vaccination. Because of the presumed immunity by his early attack, he was employed by the

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Board of Health as general utility man at the smallpox hospital last June, for a short time while one patient was there.

March 15 the hospital was reopened as smallpox again appeared, and F. resumed work, transferring patients from their homes, destroying infected bedding, clothing, etc., mingling freely with the patients, who numbered eighteen.

March 30 he complained of headache, backache, and chilliness which aroused suspicion of possible second attack. After a few doses of aspirin he resumed work, feeling perfectly well.

April 4 he awoke and found a general maculopapular eruption on his body. Similar lesions were seen on the soft-palate; the varioloid ran a rapid course without incident.—*Boston Med. & Surg. Jour.*, May 15, 1913.

TUBERCULIN continues to hold a valuable place as a means of diagnosis in surgical tuberculosis. Pain and tenderness at the site of the lesion after an injection of tuberculin points strongly towards tuberculosis. The dose should be small (1-10th milligramme O. T.) or large ($\frac{1}{2}$ milligramme), according as the reaction to a preliminary von Pirquet test is marked or absent.—*Amer. Jour. Surg.*

SKIN DISEASES AMONG INDIANS.—E. S. Lain, of Oklahoma City, Okla., gives the summary of his observations and investigations among the full-bloods of the so-called "uncivilized tribes" of western Oklahoma during the past eight years, as opportunity offered. His diagnoses are not, he says, verified by microscope, he having carried them on under difficulties which will obviously suggest themselves to anyone knowing these people. Wassermann tests, etc., are exceptional. His studies corrected an erroneous idea, previously held by him, as to the frequency of syphilis among the Indians. Only among the Arapahoes and a portion of the Cheyennes was it as frequent as among the whites. The most common diseases are: nevus, acne, eczema, lupus vulgaris and erythematous, pityriasis, capitis, seborrhea, among school children; syphilis, verruca, pediculosis, impetigo and other forms of pus infection and, perhaps most frequent of all, tuberculosis of the lymph-nodes, particularly in the cervical region. The habits of the Indians favor the passing from one to another, and the origination of various

diseases. The Indian skin seems to be immune to the poisonous effects of plants like poison ivy, and dietetic skin diseases seem to be less common than might be expected. No baldheaded Indian of either sex was observed and no case of pellagra. Cancer is also very rare. He sums up as follows: "1. The full-blood Indian is not subject to the variety of dermatologic lesions found in the white race. 2. Full-blood Indians are most free from such skin diseases as may be produced or excited by menstrual disorders or an overtaxed nervous system. 3. Though their food is limited in variety and poor in quality, they do not have many of the skin lesions which we ordinarily attribute to such causes. 4. Previous to civilization, baldness was probably unknown among the American Indians. 5. While syphilis is common among the different tribes, it is not so prevalent as the sensationalists would have us believe. 6. Tuberculosis of the lymph-nodes, particularly of the cervical region, is very prevalent and might be largely prevented if more prophylactic measures were enforced by our United States Indian Service. 7. The uncivilized Indian apparently is yet free from pellagra and almost immune to cancer." Lain suggests that the simple outdoor life, limited foods, etc., of the Indian may in some way aid us in obtaining clues as to the etiology and propagation of skin diseases in our own race.—*Jour. A. M. A.*, July 19, 1913.

AN ABDOMINAL DRAINAGE TUBE that is in contact with the epigastric vessels occasionally erodes them and causes alarming hemorrhage. When such a vessel is at the edge of a wound through which a tube is to be passed, it is a wise precaution to ligate it above and below.—*Amer. Jour. Surg.*

CORRECT EXPRESSION.—In the popular writings of the day one frequently sees curious errors in verbiage, which tend to confuse readers.

One of the most common mistakes is to make use of the words tubercular and tuberculous as if they were interchangeable. In careful writing the term tuberculous should be applied when one desires to call attention to the fact that the tubercle bacillus is the cause of the tubercle. The word tubercular simply means that tubercles are present. Patients suffering from tuberculosis are tubercular merely because tubercles are present.

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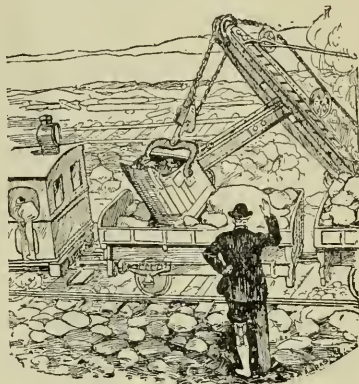
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STEAM SHOVEL AT WORK

They are really tuberculous because the cause of the tubercle formation is the bacillus tuberculosus.

Diphtheria is a condition due to an infection by Loeffler's bacillus diphtheriae. The term diphtheritic is applied to any condition in which a membrane is formed. A diphtheritic sore throat may or may not be due to the diphtheria bacilli.

Frequently one sees confusion in the use of the expressions *in vitro* and *intra-vitam*. *In vitro* is properly used in connection with experiments of a test tube character while *intra vitam* suggests experiment upon the living organism.

Sensus has reference to those things which appeal to the senses, particularly objects of art and beauty. The word sensual implies a condition which appeals to the passions.

These few illustrations serve to indicate a certain laxity in expression of which numerous examples could be offered. Correct expression is essential for the exact exposition of one's ideas and ideals. The use of the dictions, or a book of synonyms will simplify editorial work and result in a more uniform and accurate type of written language. This is a subject which physicians might well investigate in view of their increased opportunity for participating in creating a popular medical literature that is so helpful in the propaganda for public health.—Med. Rev. of Rev.

THE LINING MEMBRANE of a maxillary bone cyst is usually easily removable complete with forceps.—Amer. Jour. Surg.

CHRONIC SUPPURATION IN THE MIDDLE EAR may be entirely due to an adhesion near the floor of the tympanum and the internal wall forming a pocket in which pus may lodge.—Amer. Jour. Surg.

REPEATED ASPIRATION of an ear discharge, the syringe tip or otoscope snugly fitting the external canal, greatly accelerates the cure of an otitis media.—Amer. Jour. Surg.

CREMATION IN THE UNITED STATES.—The Memorial Day exercises were held recently in the chapel of the Detroit Crematorium, which was filled to overflowing by a sympathetic audience. Professor George G. Hermann delivered the dedicatory speech, acknowledging the presentation of an organ to the Michigan Cremation Association by the family of the late Mr. Conrad Pfeiffer, who had taken a prominent part in promoting the cremation movement. An address was delivered by the Rev. Dr. Eugene Rodman Shippen, minister of the First Unitarian Church of Detroit. He said that to-day the advocates of cremation were witnessing the growth of public sentiment in their favor; it is no longer required conspicuous courage to espouse the cause they represented. But a generation ago many of those whom they honored that day had to make no small sacrifice in standing up for their principles. Men and women with social and affectionate natures did not lightly enter upon a course which might bring upon them the stigma of eccentricity or fanaticism, even though it were attached to their memories. All honor, then, to the noble company of pioneers in the army of cremationists! The clinging to the body

implied, in the last analysis, a lack of faith. On the other hand, the calm surrender of the body as a mere shell, "one out of which the pearl is gone," was direct evidence of their belief that "flesh and blood cannot inherit the kingdom of God." The practice of incineration testified to the materiality of the body, and that was only the inverse statement of the spirituality of the soul. He insisted that those who clung to the body were materialistic, not the cremationists. Their duty was clear—to wage an educational campaign for their rational progressive principles. Not only was science overwhelmingly in favor of those principles, but the logic of events supported the advocates of cremation. Population was rapidly becoming urban; cities were growing by leaps and bounds. Not only was the land needed for commerce, industry, homes, but, what was more important, the danger from city cemeteries increased with the congestion of population. Dr. Shippen looked upon the cremation movement as a great humanitarian cause—the safeguarding of the health of society. The inertia, if not positive opposition of conservatism, on this question in English-speaking countries was appalling. In the United States there were only forty-eight crematories, whereas there should be tens of thousands.—Brit. Med. Jour.

THE HEALING OF A MASTOID WOUND is often accelerated by lengthening the intervals between dressings, allowing Nature to do her part in repair with minimal disturbance.—Amer. Jour. Surg.

THE ANTI-ALCOHOL PHYSICIANS IN MUNICH.—The personnel and point of view of medical men who practise where the per capita consumption of alcoholics reaches a high point should be of interest to physicians of the United States. It is somewhat unfortunate that many of the latter, when they pronounce against alcohol speak simply as asylum physicians or proprietors of sanatoria for alcoholics and drug addicts and seem to be incapable of forming an unbiased judgment regarding the moderate use of alcohol by sane individuals. The men of Munich who are opposed to the use of alcohol appear to be those who are naturally concerned with children and youth and with those who, if intoxicated, are actually a menace to the common welfare. At the annual meeting of the German Medical Temperance Society Engel said he had been endeavoring to convince chauffeurs and owners of automobiles of their peculiar dangers from alcohol. His leaflets were mostly accepted in the proper spirit, although one club refused them. Hecker, representing the school physicians, spoke of enlightening the growing child as to what alcohol may do to him, and we can well imagine that in a community where children receive beer at home, often from infancy, such instruction is bestowed to some purpose. Bayr showed by psychological tests the mental inferiority of school children who had become alcoholized. The percentage of child teetotalers is increasing, and all who have any supervision of youth, including athletic instructors, are asked to see that as far as possible children grow to manhood without alcohol. There is no suggestion here of antagonism toward adults who are not abstainers, and even dealers are not abused. The harm exerted by alcohol upon children seems to be a matter of proof, although the documents of Ziehen, Krapelin, and others based on the effects of alcohol on adults

are not applicable to children who require proofs adapted to themselves alone. The psychological studies of Bayr, already mentioned, upon children who have already become addicted to alcoholics, gives us the desired method, which has been corroborated over and over in different countries.—Med. Record.

CAREFUL AND METHODIC DILATATION is the best mode of treatment in follicular gonorrhea. It must be carried out for months if the best results would be obtained.—Urologic Review.

INSANITY AND EPILEPSY IN ANCIENT TIMES.—Jones notes that insanity was familiar to the Egyptians, whose mentally afflicted were taken to the Egyptian temples, where they were treated by the priests with incantations and sacrifices. Traditional medical knowledge in regard to the insane is said to have been carefully preserved in India. Among the Greeks, Esclepiades constituted an hereditary order of priesthood, who were supposed to exercise curative powers over insanity; and there were Greek laws made 500 B. C. defining those lunatics who had to be confined. The Romans in their laws guarded the insane as well as their estates. Some of the earliest authentic cases of insanity, as well as of epilepsy, are related at considerable length in Holy Writ; for instance, the insanity of King Nebuchadnezzar, and also his recovery, after which it is recorded he was replaced as King upon the throne of Babylon. The history of King Saul, 1000 B. C., also relates his insanity, and there are several descriptions of epilepsy, the most typical being the only child, who was also a lunatic, for he "suddenly crieth out and foameth at the mouth and gnasheth his teeth," and "oftentimes he falleth into the fire and oft into the water." The ancients not infrequently ascribed epilepsy to the malice of demons, or to the anger of offended deities. If a person was seized with epilepsy in the forum, the Romans considered it an ill omen, the meeting was dissolved, and all public business was suspended for that day. Hence the disease was called morbus comitialis. Morbus qui sputatur was another of its names, because those present were accustomed to spit upon the epileptic, or into their bosoms, either to express their abomination and loathing, or to avert the evil omen.—The London Practitioner.

ANASTOMOSIS OF VAS DEFERENS TO EPIDIDYMITIS OF OPPOSITE SIDE FOR STERILITY.—F. R. Hagner, of Washington, reports an interesting attempt to cure a sterility. The patient, aged forty, had had gonorrhea twenty years previously, complicated by double epididymitis. Repeated examinations failed to show spermatozoa. An anastomosis was done on the left side in 1910. No spermatozoa were found in that testicle. Later he was operated on the right side, but the vas on this side was found to be occluded. It was then suggested to bring the left vas over and anastomose it to the right side. The left vas was proved to be patulous by injecting arevrol through it. Only a few non-motile spermatozoa were found in the globus major on the right side. The man was still sterile after the operation. Although this particular case was unsuccessful there was no logical reason why another individual presenting the same features, with motile spermatozoa, should not be successful.—Boston Med. & Surg. Jour.

MERCK'S ARCHIVES

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RELAPSES IN MALARIAL INFECTIONS: TREATMENT

By Beverley Robinson, M.D., of New York

TIME and again every physician of large experience has found cases of malaria which, with or without apparent cause, have relapsed. It might be that a possible re-infection occurred, but this seemed highly improbable when all the circumstances were considered and in view of later developments in the case. Moreover, we now know by the findings from skilled laboratory research, how the plasmodium behaves far more accurately than a few years ago. Frequently it has been searched for in the blood in the past with painstaking repetition and none found. Or again, if it were discovered, it was true only after repeated examinations and the lapse of many weeks. At the present time we are not surprised, because we know at times there are very few, or no, plasmodia in the peripheral circulation. They may possibly be found in the blood of the spleen, and even if not there, still existent in the bone marrow. In some of the doubtful cases the free use of quinine has usually been relied upon to settle the question of diagnosis. If the patient's condition did not improve manifestly in a few days, or at most weeks, under this treatment, another diagnosis was sought and not unlikely the poor sufferer was suspected to have tuberculosis of some organ, notably of the lungs. In regard to the proper administration of quinine in these instances there is difference of judgment. It is stated by some authorities that quinine should be given every four hours

in doses of five grains; by others, that ten grains should be given three times, at intervals of two hours, preferably in the morning. In either case, it is held to be desirable not to interrupt the use of quinine in smaller or larger dose, and at relatively rare intervals, until convalescence appears to be established during some days or weeks. To this practice there are objections and pitfalls. Given in either way above stated quinine causes frequently unpleasant symptoms, notably in the ears. Indeed, the ears may occasionally be seriously injured by quinine. Again, some people cannot take quinine, even in very moderate doses, without being appreciably disordered in some way; it may be in the digestive organs, or nervous system. Further, quinine fails in certain cases to cure malarial infection even of acute type. It is well known that in chronic malaria, accompanied or not with marked cachexia, by itself it fails utterly. In these instances something more or different is required. Bark, iron, arsenic, Warburg's tincture—one or another is required. According to James, it would seem that relapses would not occur if larger doses of quinine were given with the primary malarial attack. To give too small doses at this period of the disease is simply to establish immunity to it as a curative agent, and later a sexual parasitic forms increase in the bone marrow and give rise to fresh outbreaks. I cannot admit this statement to be correct with us in New York, whatever it may be in the canal zone.

My own observation and experience of many years prove conclusively that doses of Huxham's tincture of bark, one dram

every two hours, diluted, when taken, will cure cases in which quinine is inert. It will also, I believe, prevent relapses. In addition to its use, I have had happiest results from a pill of reduced iron, one grain; arsenic, 1-60 grain, and quinine, 2 grains; the cachectic condition was notable when and where crescentic forms and free pigment were present in the blood. I have also found repeatedly that the provisional use of Warburg's tincture, or extract, has been remarkably useful when other means failed. I regret extremely to find in Osler's later editions of Practice, that no mention at all is made of Warburg, and among our younger hospital physicians, some of whom are pre-eminently able, it is never used. Shades of Flint and Loomis, how much you must be grieved! It is probable that by reason of the aloes and rhubarb in Warburg's tincture, or extract (with aloes), the liver and bowels are favorably affected, especially if there be a constipated habit.

[Contributed to MERCK'S ARCHIVES]

TONSILLITIS

By W. C. Wolverton, M.D., of Badger, Iowa

By the term "Tonsillitis" we mean an inflammation of the faucial tonsils; however, the inflammatory process, for reasons which are at once obvious, is rarely confined strictly to the tonsils, but involves also the neighboring glandular structures of the pharynx. This inflammation may be either acute or chronic.

Acute Tonsillitis comprises: (1) Acute catarrhal (erythematous) tonsillitis, in which the tonsils are reddened and swollen; (2) Acute follicular or lacunar, in which the tonsillar crypts are filled with plugs of whitish material consisting of mucus, fibrin, leucocytes and bacteria, these plugs showing at the orifices as whitish disks of pin-head to match-head size; (3) Pseudomembranous (or necrotic, gangrenous, or aphthous), a form often mistaken for diphtheria, but occurring usually as a complication of the exanthemata, and caused probably by streptococci; (4) Ulcerative, which is only a step further than the preceding variety, after sloughing has taken place; (5) Acute parenchymatous tonsillitis (suppurative tonsillitis, or quinsy) is very rarely or never a true tonsillitis, as an abscess rarely occurs in the tonsil itself as the result of acute tonsillitis; strictly speaking, this condition should be, and is spoken of as "peritonsillar abscess"; (6) Diphtheritic tonsillitis, an entirely distinct and separate pathological entity, and to be mentioned here only for the purpose of differential diagnosis.

Chronic Catarrhal Tonsillitis is associated with inflammation of the follicles, and marked and permanent hypertrophy of the tonsils. The hypertrophy is the result of chronic inflammation following upon repeated acute attacks, and occurs in two forms: (1) The ordinary soft, spongy hypertrophy found in children and adolescents. This variety follows repeated acute attacks, or as a sequel of diphtheria or the exanthemata, especially scarlet fever; (2) Scirrhus, or "hard, fibrous" tonsils, characterized by enormous increase in the connective tissue of the gland, and a canalicularization of its blood-vessels.

Etiology: Acute tonsillitis is an infectious disease, and would seem to be not due to any specific microorganism, but to any one of the pyogenic group of cocci comprising various members of the streptococcus family, the staphylococcus albus, the pneumococcus, etc.

These organisms are "normally" literally swarming in the nasal, nasopharyngeal and buccal cavities. The tonsillar crypts form lodging places for food particles, so that there is present a suitable pabulum for the sustenance of pathogenic bacteria, in addition to all the other conditions, including moisture and proper temperature, favorable for microbic activities. Now, if for any reason the "vital resistance" of the human organism is lowered by a disturbance of circulatory equilibrium and retention of toxic waste-products, incident to a "cold," severe chilling of the surface of the body, getting the feet wet, etc., the pathogenic cocci resident in the tonsillar crypts find it possible to set up an acute local inflammatory process. From this nidus the bacterial toxins, and even the cocci themselves gain entrance into the circulation, thus giving rise to the systemic symptoms, fever, chills, accelerated pulse-rate, headache, backache, etc.

Diagnosis: It would seem that the diagnosis of tonsillitis should be a very simple matter, and that it would be almost impossible either to overlook a case of this disease or to mistake it for something else, or vice versa. But so many mistakes are made along these lines that we will go into this part of the subject rather in detail.

First of all, if we examined the throat of every infant and young child who comes under our care, there would be very few cases of "idiopathic" fever. Tonsillitis is such a common disease of childhood; and yet it is so often overlooked; I have known one doctor who made a diagnosis of *typhoid fever* in a case of tonsillitis, because he did not look into the throat at all.

It is astonishing how often diphtheria is mistaken for follicular tonsillitis; and, per contram, follicular tonsillitis is sometimes mistaken for diphtheria. Now, with an experience of nearly eight years as a health officer, during which time I have examined the throats of many hundreds of patients suffering from either the one or the other of these two diseases, it is hard to imagine how they can be confused one with another. But in some localities a doctor may see a case of diphtheria only rarely; and in such instance he may be in doubt. The best rule in such a case is this: At once, or as soon as possible, administer at least 2000 units of diphtheria antitoxin; establish a provisional quarantine; swab the throat and nose of the patient, and inoculate a culture tube, using one of the outfits sent out for that purpose by the various State Boards of Health; send the inoculated culture-tube to the laboratory maintained by the State Board of Health, and in a few hours you can know, by telegraph, whether or not the infection is due to the specific Klebs-Löffler bacillus, or whether you have to deal with only an ordinary case of tonsillitis. The observance of the foregoing rule will save the life of many a patient, to say nothing of preventing the doctor from getting himself into some very unpleasant situations. As to the clinical differences between tonsillitis and diphtheria: tonsillitis is *practically never a unilateral process*; diphtheria may be either unilateral or bilateral. Sometimes the whitish material exuding from two or more tonsillar crypts may coalesce, and so give the appearance of a small patch of pseudomembrane; but investigation with a cotton-wrapped probe will show that the "membrane" can be easily detached, without leaving a raw, bleeding surface, if the operation be performed gently. In the case of a real pseudomembrane of diphtheria, the "membrane" is composed of the mucous membrane of the tonsil itself, which has been coagulated and rendered necrotic by the action of the toxin elaborated by the specific bacilli of diphtheria. It will be found that the pseudomembrane of diphtheria can be detached only with extreme difficulty, if at all (for the reason just stated), and when removed leaves a raw, bleeding surface.

Another safe rule to follow is this: Any inflammatory disease involving the tonsils, and characterized by a "membrane" extending up onto the arch of the palate, or involving the uvula, is diphtheria.

Now, not every case of pseudomembranous tonsillitis is diphtheritic. In scarlet

fever there often occurs an angina so severe as to be marked by the formation of a pseudomembrane; occasionally this may be a true diphtheria, complicating the scarlatinal process; but *usually* it is due to the action of *streptococci*. But it is well, in such cases, to treat the case as if you knew it to be diphtheria, until a bacteriological culture proves it is not.

It is conceivable that the mucous patches of syphilis, often observed on the tonsils, might be mistaken for either ulcerative tonsillitis or diphtheria. In fact, the writer recently saw such a case, which another physician had diagnosed as tonsillitis. But if one uses his powers of observation properly, makes cautious inquiries of the patient, and searches for the treponema pallidum in scrapings from the suspected lesions, he is hardly likely to go wrong in his conclusions. On the other hand, a deep ulcer of the fauces or tonsil should not be diagnosed as specific without first having excluded acute lymphatic leukemia; a simple differential leucocyte count will clear up any doubt in the matter.

Bilateral large smooth swellings of the tonsils should arouse suspicions of Hodgkins' disease; thorough examination of the other lymphatic structures of the body will determine the presence or absence of this fatal condition.

Occasionally there may be some confusion between a peritonsillar and a retropharyngeal abscess; but in either case the treatment is the same, namely, incision, to provide free exit to the pus.

Complications: The complications of tonsillitis are more varied and much more serious than is generally believed. This disease has too long been considered as being merely a local process, whereas the very severity of the symptoms themselves would mark it as a systemic infection. It has recently been shown that *endocarditis* occurs frequently as a complication of acute tonsillitis, the pathogenic cocci responsible for the latter disease gaining entrance to the general circulation, and setting up a metastatic process upon the heart-valves. Careful physical examinations in patients with acute tonsillitis will reveal many acute valvular lesions, directly traceable to the original focus of infection in the tonsillar crypts.

The routine examination of the urine in tonsillitis cases will reveal a surprisingly large number of cases of acute nephritis traceable to the tonsillar trouble as the primary focus of infection. Miliary abscesses of the kidneys also occur as a complication of acute tonsillitis, when the bacteria have

gained entrance to the general circulation. Repeated attacks of acute tonsillitis may, through the action of the bacteria or their toxins, give rise to repeated attacks of acute nephritis, so that as the result the latter condition may become chronic. And, following the reasoning of Adami, in his theory of subinfection, wherein he shows that chronic nephritis may result from the long-continued action of the toxins generated by the putrefactive bacteria of the intestinal tract, it is not unreasonable to suppose that toxins emanating from the crypts of tonsils the seat of chronic inflammation, may produce a similar result in the renal structures.

The close relationship existing between tonsillitis and acute "rheumatic polyarthritides" is, or should be, well known to all.

It would seem, then, that diseased tonsils form the portal of entry for pathogenic bacteria, which, having gained entrance to the general circulation, may set up a variety of septic processes.

Treatment of Acute Tonsillitis: This is largely symptomatic, so far as medicinal treatment is concerned. Calomel and sodium bicarbonate, followed by a saline cathartic, should be given in dosage sufficient to effectually clear out the gastrointestinal tract. There is little to be said as to diet, for the patient is usually without desire for food, or is even nauseated; and the throat is so sore as to make deglutition very painful. When the appetite returns, it is time to begin giving a soft diet.

In the majority of cases the temperature quickly becomes high. Then *amorphous* aconitine is very efficient in lowering the fever. The dose of the *amorphous* aconitine (Merck's), *not the crystalline* preparation, is one milligramme (1-64 grain) every $\frac{1}{2}$ hour to 1 hour until the temperature begins to fall and the skin becomes moist; then once every 2 or 3 hours, as necessary to keep the temperature down within reasonable limits. The foregoing dosage is for adults or adolescents; for children, Shaller's rule should be followed: in 24 teaspoonfuls of hot water dissolve 1-64 grain of the *amorphous* aconitine for each year of the child's age, plus an extra 1-64 grain. Of this solution, give one teaspoonful at the above-mentioned intervals. The idea is to give small doses at short intervals, *to effect*, and then often enough to sustain the desired effect. The writer has found this drug very effective in all the acute sthenic febrile conditions of childhood, and peculiarly so in tonsillitis and pneumonia. Veratrine, in the same dosage as that given for *amorphous* aconitine, is

also very effective for the same purpose.

Cool sponging is gratifying to the patient, when the temperature is high; and rubbing the back with dilute alcohol gives considerable relief from the unbearable ache. For the headache, equal parts of acetylsalicylic acid and acetphenetidin, with a small amount of codeine, when necessary, will be found to give relief.

Plenty of water, lemonade, etc., should be ingested, to aid in eliminating toxins.

As a local application, any mild alkaline antiseptic solution, as Seiler's or Dobell's, is of value. Sprays fail utterly of accomplishing the purpose for which they are intended; and gargles are but little better, and besides, there is the danger that liquid used in gargling may find its way into the Eustachian tubes, if the orifices of the latter are patent, and set up an inflammatory process which may extend to the middle ear. The only effective form of local treatment is swabbing. A 10 per cent solution of silver nitrate gives great and prompt relief in many cases, when applied on a swab; but one must see that there is not an excess of the solution in the cottonswab, as it is liable to drop into the larynx and cause strangling. A solution which has been highly recommended as a local application consists of formalin (40 per cent.), 3ss, in glycerin, 3ij to iij. Another good preparation is Tr. Benzoni Co., applied full strength, as swab, spray, or as a steam spray (using a croup-kettle). Phenol-camphor (1 part of phenol crystals, and from 1 to 3 parts of gum camphor, combined by melting over a waterbath) applied by means of a swab is very effective, and often shortens the attack considerably. Still another good solution for swab or gargle is Knight's Triple Soda solution: equal parts of the bicarbonate, borate and salicylate of sodium are mixed together; of this powder, a teaspoonful is dissolved in two ounces of hot water and used hourly.

A treatment which is giving excellent results in the hands of many physicians, including the writer, is the administration of a mixed stock vaccine of polyvalent strains, prepared from microorganisms obtained from the throats of patients suffering from tonsillitis, and containing streptococci, staphylococci, and pneumococci. This is a rational treatment, based on the etiology of the disease, and gives very good results when used as an auxiliary to the usual medicinal treatment.

Treatment of Chronic Tonsillitis: There is but little to be said about the medicinal treatment of chronic tonsillitis. One writer claims to have achieved good results in

shrinking the greatly hypertrophied tonsils by daily local applications of suprarenal extract. The best local application is the well-known solution of iodine and potassium iodide in glycerin; daily swabbing with this solution will do much toward ridding the tonsils and pharynx of streptococci and other noxious germs. Phytolaccin, mercury biniodide, and potassium iodide may in some cases reduce the hypertrophy, when administered internally over a considerable period of time.

However, the treatment in by far the greatest number of cases of chronic tonsillitis is *surgical*. If surgical treatment is indicated, then anything short of the complete removal of the organs (that is, tonsillectomy), fails of its mission. Furthermore, as between tonsillotomy and tonsillectomy, the latter is the safer operation, when performed by a competent operator.

There are innumerable methods or modifications of methods of performing a tonsillectomy; but, in the case of children, I believe the best operation I have ever seen performed is the one done by Dr. E. H. Beckman, of the Mayo Clinic, at Rochester, Minn. The little patient is thoroughly anesthetized with ether; then, with two Jacobs' cervical tenacula, the lower and upper poles of the tonsil are firmly grasped, and the tonsil is drawn well out and up into the buccal cavity. As Dr. Beckman says, it is all a matter of getting a good hold on the tonsil to start with; if you do that, the rest is easy. Then, with a pair of curved Mayo scissors (I heard Prof. Kelly, of Liverpool, Eng., speak of them as "those wonderful scissors, which are neither sharp nor blunt") the tonsil is freed from the pillars of the fauces, following along the natural line of cleavage; if care is exercised not to wound the pillars, there is surprisingly little hemorrhage. Then, with the index finger wrapped in dry gauze, the tonsil is quickly and easily peeled out of its capsule. As Dr. Beckman said, as I watched him do the operation many times, "See! it just rolls right out." He has tried all sorts of tonsil-grasping forceps, and says that the heavy, straight Jacobs' uterine cervical tenaculum is better than any of them.

In adolescents and adults, where we have to deal more often with the hard, fibrous tonsils, the operation may advantageously be done under a local anesthetic. Here tonsillectomy certainly is the indicated operation, as the use of a sharp instrument like the tonsillotome, leaves the blood vessels cut off squarely, and embedded in the fibrous stump of the tonsil, with the result that there is profuse hemorrhage. It is a great

deal safer to make a careful dissection of the tonsil, beginning above and working down to the base, where the tonsillar artery is located. This is a vessel of some size, and deserves respectful consideration. When the tonsil has been thoroughly freed down to the base, a wire snare should be slipped over the tonsil-forceps, and the loop of the snare *gradually* closed. If this precaution is observed, the hemorrhage will not be very great.

Many operators nowadays are giving a great deal of care to hemostasis, in their tonsillectomies. After the tonsil has been snared off, a piece of gauze wet with Tr. Iodi, is firmly pressed into the cavity left by the tonsil, and held there for a moment; this is repeated until hemostasis has been accomplished. The iodine accomplishes a double purpose, bringing about hemostasis, and sealing up the opened lymph-channels against infection.

And just here it is worth while to speak a few words of caution: Before operating for the removal of tonsils and adenoids, be sure that they are not a manifestation of the "status lymphaticus." If you find evidence of a persistently large thymus body, do not operate; at least do not operate under a general anesthetic. Also, if the patient is a hemophilic, *let him alone*.

COMMON DERMATOSES AFFECTING THE PENIS*

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IN a discussion of the dermatoses of the penis, it is necessary to consider the glans penis and prepuce separately from the sheath of the organ, as the lesions of the same disease differ from each other according to their distribution.

The more common acute conditions which we find upon the glans penis and mucous surfaces of the prepuce are scabies, balanitis, herpes, syphilides and chancroid.

Scabies presents a polymorphous picture, vesicles, pustules and papules. The earliest lesion is the burrow which appears as a tortuous line, red or in uncleanly individuals, dark in color, from one-thirty-second to one-sixteenth inch in length. The burrow frequently terminates in a vesicle, which from secondary infection, may become pustular and obscure the entire burrow. The older lesions are papular or papulo-pustular, presenting themselves as

*Medical Times, Sept., 1913.

round, elevated, dusky red papules, on the surface of which the normal lines are obliterated. The lesions are multiple, varying in number from two or three to a great many. Treatment consists in daily inunctions of a ten per cent. sulphur ointment for five days, repeating the course of inunctions fifteen days later to destroy the second crop of parasites incubated from the earlier eggs.

Balanitis may be due to one of several causes: (1) Simple, due to uncleanness and resultant decomposition of smegma; (2) the circinate-erosive type, due to a specific spirillum, the type being quite rare; (3) due to too vigorous use of antiseptics, especially phenol and the mercurials; (4) secondary to vegetations, syphilides, chancroid, gonorrhea.

The simple balanitis or balano-posthitis is characterized by a profuse, foul smelling discharge; the epithelium of glans and prepuce is red, tender and edematous. In severe cases the swelling may cause phimosi. Treatment consists in a local bath of hydrogen peroxide, followed by thorough drying; the whole surface is then to be sponged with a two per cent. solution of silver nitrate, dried and a dusting powder of thymol iodide applied. The patient is directed to clean with warm water, dry, and use the dusting powder after every urination. As a rule a cure is effected in from twenty-four to forty-eight hours. In recurrent cases circumcision is indicated. Secondary types are treated in the same manner but the time of recovery depends upon the cause.

Herpes proiesitalis is a common occurrence. If seen early the diagnosis is simple, the lesion consisting of grouped vesicles upon an erythematous base. The patient complains of an intense burning and itching. On the glans penis, however, the vesicles rarely remain intact, and when seen the eruption usually consists of a group of pin-head size erosions upon an inflamed base. The treatment is the same as that laid down for balanitis which frequently complicates a widespread herpes. Often the erosions become infected and such lesions should not be confused with chancroid. In the latter there is no characteristic grouping and the loss of tissue is more extensive.

The syphilides commonly seen are chancre and moist papules. The chancre appears in from fourteen to thirty days after inoculation. The usual site is the corona. If uncomplicated it appears as a red elevated, flat, nonexudative papule. The surface usually becomes rapidly macerated,

leaving a small exulceration. This enlarges from day to day to attain its maximum size in about two weeks. During this time it becomes indurated at the margins and base, giving the impression of a button or disc of cardboard beneath the skin. The lymphatics become indurated to feel like a heavy cord, and the glands in the groins become painlessly enlarged and indurated. The chancre is subject to great variation; it may be single or multiple. A common differential point made between chancre and chancroid is that the former is single and the latter multiple. The reverse is found just as frequently in my experience. The patient may have a chancre develop wherever an abrasion exists and such abrasions are very often multiple. A case now under my observation had four chancres on the sheath of the penis and two on the glans. Frequently the chancre is complicated by staphylococcal or Duccréy bacillus infection and in these cases the picture is sometimes very obscure. An ultramicroscopic examination should always be made to determine the presence of *spirochaeta pallidum*.

Moist papules are a part of the general eruptive stage of syphilis, and appear as sharply circumscribed, elevated, flat, indurated, exudative papules, usually along the corona.

Chancroid appears in from two to ten days after inoculation as a vesico pustule, which very rapidly breaks down, leaving a punched out ulcer. The ulcer enlarges peripherally, the border being typically undermined. There is profuse, purulent discharge which may cause other lesions by auto-inoculation. Suppurating bubo is a frequent sequel. Treatment consists of early and thorough cauterization with pure phenol, followed by wet dressings.

The chronic dermatoses which we find are few in number. The two common conditions are vegetations and eczema; the less common diseases are lichen planus and epithelioma. Also scabies may be seen as a chronic papular dermatosis.

Vegetations or venereal warts are extremely common along the balano-preputial sulcus, not only in the uncleanly but in those who are scrupulously clean. They start with one papillary overgrowth which soon divides; other papillae develop and likewise multiply until the whole growth is cauliflower-like. There may be one or several of these growths or they may be so numerous as to entirely cover the glans penis. The consistency is usually soft but at times becomes horny. A less common type of verruca is the flat type similar to

that seen in children on the backs of the hands and wrists. The best treatment is removal by means of the sharp curette, followed by cauterization of the base with fused silver nitrate, to control bleeding, and subsequent application of thymol iodide dusting powder. Balanitis and phimosis may be caused by the presence of vegetations.

Eczema is usually of the weeping type and old men with phimosis are especially prone to suffer from it. In such cases circumcision is indicated as epithelioma may develop due to the continued irritation. Drying lotions and powders usually control other types.

Lichen planus is a part of the general dermatosis and presents itself as a linear or irregularly shaped patch of a violaceous color caused by the coalescence of smooth, angular, elevated papules. Epithelioma is rare and may start with a papillary overgrowth, vegetation, or sluggish ulcer. It is of rather slow evolution. Radical operation is demanded.

We next deal with diseases of the sheath of the penis, and here we find the acute conditions to include scabies, herpes, chancre, chancroid and dermatitis venenata.

The lesions of scabies are much the same as those on the glans penis, the vesicle and vesico-pustule being more common than the papule; all primary lesions may, however, be obliterated by abrasions due to scratching.

Herpes is common and here we usually find the vesicles unbroken. Some men are especially prone to attacks of herpes on the sheath of the penis, and it is sometimes possible to determine a definite etiological factor, such as intercourse, rheumatism, diet, gastro-intestinal disorder, gout, etc. Local treatment consists in the application of a drying lotion, such as calamine, lotio nigra, lotio plumbi et opii, etc. General treatment should be directed toward the correction of any etiological factor which may be found. Herpes zoster may appear on the penis as a part of a more extensive eruption.

Chancre is of frequent occurrence and oftentimes attains a greater size than chancre of the glans penis; its evolution is similar to the latter but at times the induration seems more superficial, and on account of the looseness of the integument, a certain amount of undermining at the margin is common.

Chancroid is not so common, as it is upon the prepuce and glans. Its character is the same, although undermining may become quite extensive.

Poison ivy is nearly always seen upon the penis when seen elsewhere, due to han-

dling of the organ when the rhus poison is still fresh upon the hands. There is a marked inflammatory edema accompanied by intense burning and itching. Vesiculation is not so common as it is upon the hands. Wet dressings of lotio plumbi et opii give as much relief as anything. One case in my experience was caused by the direct application of the plant as a substitute for toilet paper. The penis, scrotum and anus were enormously swollen and inflamed, so much so that the patient was bedridden for several days.

Chronic diseases of the sheath of the penis include the various syphilides, psoriasis, seborrheic eczema, neoplasms and pigmentary disorders.

Syphilis as a part of a general macular or papular eruption is easily recognized. The later lesion of the serpiginous and cunicate types are not so common and are confusing unless carefully examined. I have seen several cases in which such lesions had previously been diagnosed as ring worm. In the first place, one will note that the center has not been the seat of the eruption. The ring is composed of deep-seated papules, dusky red in color, sharply circumscribed. These papules coalesce to form the ring or serpiginous outline; they may be smooth, scaling or superficially ulcerated. Similar lesions may be found on other portions of the body or the lesion of the penis may be solitary.

Gumma is rare and resembles gumma elsewhere, a sharply circumscribed, punched out ulcer.

Psoriasis may be a part of a general eruption, in which case it is easily diagnosed, or it may be localized to the penis, inguinal and pubic regions, and scalp. In this type the scaling is finer, there is less thickening and the base is paler than in psoriasis on the extremities. Mild tar ointments or ammoniated mercury are indicated.

In extensive cases of seborrhea one frequently finds the penis and pubic region affected. The yellowish, greasy scaling with a slight or greater degree of eczema makes the diagnosis simple.

Sebaceous cyst and fibroma are easily recognized and removed surgically. Both are quite common.

The penis is a favorite site for vitelligo. This disease is merely a medical curiosity and treatment is of no avail. On the other hand, one very frequently finds a hyper pigmentation the cause of which is not known. In extensive cases of pityriasis versicolor the penis may be affected. The treatment consists in the application of a saturated solution of sodium hyposulphite.

GRIPPAL LARYNGEAL STENOSIS CURED BY FIBROLYSIN*

By N. Thiberge, M.D., of New Orleans

THE multitude of interesting features involved in the following case of laryngeal stenosis has induced me to report it at length. It was remarkable on account of the brilliant result of fibrolysin on an ankylosis of the aryteno-cricoid joint brought on by grippe.

The initial symptoms, which were to culminate in an urgent tracheotomy, gave but slight intimation of the coming ordeal.

J. B., Jr., a little boy of two and one-half years, was first seen by me December 4, 1912, for a slight rectal temperature (101°), irritating cough and hoarseness. No pharyngeal symptoms, no toxemia. Mild remedies were given, and the child allowed exercise in the open air. The fever left the next day; all seemed to be well except a little hoarseness. This at first was noticed when the child grew excited and at night. The cough was metallic. On December 16, 1912, a specialist was consulted, as the obstructive symptoms were not clearing. The nights were more disturbed, respiration was somewhat embarrassed, the spells of metallic, unproductive cough were following each other more closely. Laryngeal inspection revealed no suggestion of diphtheria, but the vocal cords, chiefly the right, were found held in adduction. The culture showed only grippe.

On December 23, 1913, when the child was brought to another specialist's office (Dr. B.) he was accidentally exposed to high wind with head uncovered. This so intensified the stenosis that a throat specialist (Dr. L.), seeing him hurriedly and not being furnished with all the facts, made a provisional diagnosis of diphtheria and administered antitoxin freely. The slight improvement following the first doses was at first attributed to the serum, but later recognized as being due to the effects of the sudden exposure of December 23, subsiding under rest and the croup tent. On the fourth day the antitoxin was abandoned, after 160,000 units had been injected, and two cultures had yielded negative results for diphtheria, but positive for grippe. Urticaria was moderate.

In the interval between December 23 and January 2 all remedial measures were exhausted. Capillary congestion slowly invaded the pulmonary tubes, profuse sweating of the forehead and nasal bridge, anxious expression, increased irritability, drawing in of the xiphoid appendix were noted when Dr. Landfried was called in.

His first step was to perform, under cocaine, a low tracheotomy. It was on this occasion that a fourth culture was taken, this time directly from the trachea. No membrane could be seen, no diphtheria germs, but pneumococci in abundance in the culture showed how close the youngster had been to pneumonia.

On January 11 the child was well enough to be taken home, his recovery being uneventful. From this time I frequently tested the patulence of the larynx, the child still being in the croup tent. Dangerous symptoms either showed at once or later, cyanosis, tirage, cough and vomiting showing every time. The child's voice was altered, but distinct.

It now became a question of either a permanent tube or overcoming the ankylosis by invading the cricoid box forcibly, using the dilator freely, with danger of a permanent impairment, or perhaps a total loss of speech. At this stage, recollecting a happy result obtained with fibrolysin in a keloid following a burn, I suggested the use of fibrolysin. This met with the approval and co-operation of Dr. Landfried, who termed the situation "a fight between fibrolysin and dilatation."

So gratified was he of the result that it is greatly through his urging that I present the case at length. The first dose was administered January 24 (half dose), then full doses every other day for 12 doses. No constitutional disturbance was noted. The stenosis gradually grew less. The frequent tests were made by closing the fenestrum of the tube by a section of the tapering end of a penholder, this being found easier to manage and fitting more snugly than the ordinary cork stopper.

The laryngeal tube was definitely removed March 13. On February 6 the child developed a slight grippal bronchitis in the fine tubes, which fortunately lasted only five days, with a maximum temperature of 103° . Otherwise his recovery was uneventful up to May 26, the child remaining well, breathing perfectly and talking in his natural voice. The tracheal wound, of course, gave no trouble, closing at once.

The case presents many unusual features:

(a) The slight initial symptoms slowly and gradually reaching the climax of an urgent tracheotomy.

(b) This operation, performed under local anesthesia in a child a little over two years old, without any subsequent disturbance.

(c) The large antitoxin dose, 160,000 units, with no improvement and very little anaphylaxis.

*New Orleans Med. and Surg. Jour., Sept., 1913.

(d) The inability of the child to dispense with the tube, after repeated trials, over a sufficient length of time of trial.

(e) The brilliant result of fibrolysin, relieving the ankylosed aryteno-cricoid joint, allowing the vocal cords to recede at each respiration.

(f) The permanent cure.

OBSERVATIONS ON THE ACTION OF DIGITALIS*

By Wilfred M. Barton, M.D.

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DIGITALIS was introduced into therapeutics by Withering in the latter part of the eighteenth century. It is true that Withering¹ himself was most impressed by the diuretic properties of the drug, but he nevertheless commented upon the beneficial effects of digitalis in cases of heart failure. Before the end of the eighteenth century Ferriar (1799) distinctly emphasized its power to slow the pulse. At the very commencement of the nineteenth century another idea was added to the pulse-slowng conception of digitalis action. Beddoes² and Kingslake³ in 1801 concluded from their investigations, in conformity with those of their predecessors, that digitalis slows the pulse rate, but they brought out the further fact that the strength of the pulse beat is increased. This discovery, however, seems to have made but little impression at the time, and the idea that digitalis acts upon the heart as a sedative became more and more predominant, the principal criterion for this view being, of course, the slowing of the pulse. Corrigan,⁴ in 1832 emphasized the power of digitalis to slow the heart, and was so much impressed by this fact that he advised against the use of the drug in aortic regurgitation because of the slowing of the heart and consequent prolongation of the diastolic period.

Bouilland⁵ in 1835 commented upon the effects of digitalis, calling it "*ce grand modérateur, cette sorte d'opium du coeur*" (the great sedative, the opium of the heart) and Pareira,⁶ in 1840, must have been a strong believer in the sedative effects of digitalis on the heart, for he recommended it in aneurysm and hemorrhage to reduce the force of circulation.

Twenty-one years later (1871) we find Traube⁷ upholding the sedative view, and advancing the theory that the sedative effect of digitalis is due to the stimulation of the vagus center in the medulla.

Thus we see that digitalis, during the century immediately following its introduc-

tion into therapeutics, was considered pre-eminently a cardiac sedative, and that feature of its action which attracted the most attention was its power to slow the pulse. The accepted explanation for the slowing, which, indeed, appeared entirely adequate, was vagus stimulation.

Then began a period in which the prevailing conceptions of digitalis action were considerably modified. Indeed, in some respects, it might be said that they were so radically changed as to constitute an almost opposite view.

Schmiedeberg⁸ demonstrated in 1874 that, in the frog's heart, digitalis not only slows the rate by vagus stimulation, but that it acts directly upon the cardiac muscle, increasing the force of the contractions. Other investigators, notably Cushny⁹, corroborated these findings, and at the end of the nineteenth century we find the view universally held that the action of digitalis is compounded of vagus stimulation plus a direct action upon the cardiac muscle, the latter consisting of a strengthening of the ventricular contraction and a lessening of ventricular relaxation. It was also found in animal experiments that the vessels in the splanchnic area are constricted through stimulation of the vasomotor center, and perhaps also through a direct action on the vessel wall, the result of which is a rise in the blood pressure. It was reasoned that the net result of these effects must naturally be an increased output of blood from the heart, and that the beneficial results of digitalis in cases of heart failure must, therefore, necessarily be due to a combination of these factors. The dilated heart is contracted, the weakened contractions are reinforced, the coronary circulation is improved; hence the nutrition of the muscle is increased, the slower heart allows a more complete filling of the chambers, the more vigorous contraction insures their more complete discharge. In other words, the findings of experimental pharmacology were carried over into clinical medicine, and the explanation of the good effects of digitalis on heart failure seemed absolutely clear.

It will, therefore, be seen that the work of Schmiedeberg and Cushny—there might also be mentioned others who contributed largely to the subject—tended to develop a conception of digitalis action quite at variance with that which had been previously held. If digitalis increases the force of the muscular contractions, constricts the vessels and raises the blood pressure, it must be regarded not as a sedative, but as a stimulant to the heart. This view became

*Maryland Med. Jour., Sept., 1913.

predominant over the sedative view which had ruled over the first century of digitalis use after the days of Withering.

Such, briefly, is the history of the development of ideas upon the action of digitalis up to very recent times.

The views entertained at present concerning the action of digitalis may be said to have largely emerged from those which have been detailed above. So far as the work of the experimental pharmacologist is concerned, the matter seems to be definitely settled. In healthy lower animals, when digitalis is injected into the circulation, the rate of the beat is slowed, the strength of the ventricular contraction is increased, the ventricular relaxation is diminished, the peripheral vessels are constricted and the blood pressure raised. Although the experiment has never been tried, there is no reason to doubt that in healthy human beings, under the same conditions, the same results would be obtained.

But, obviously, in the therapeutic applications of digitalis these conditions do not obtain. The hearts which are treated by the medical practitioner are affected by a great variety of pathological lesions, and the drug is never introduced in large quantities directly into the circulation.

Obviously, also, the methods which are available in the laboratory for the study of the action of drugs are not available in the clinic, and as most of the clinical investigations upon digitalis have, up to a few years ago, been made without instruments of precision, or without any careful differentiation of the various clinical types of heart disease, it is little wonder that the results were meager and confusing. With the advent of the polygraph and electrocardiograph conditions have changed. From a mass of confusing data and chaotic opinion order and clearness have arisen. Certain clinical types of arrhythmia have been definitely classified, and we now speak of auricular fibrillation, premature contractions, sinus arrhythmia, heart block, paroxysmal tachycardia, auricular flutter, pulsus alternans as definite semiological types with definite clinical characteristics and reasonably well-known pathological associations. The heart is recognized as a complex organ, made up of histologically differentiated tissue, possessed of not less than five different functions, and capable of originating, feeling, transmitting, actuating and co-ordinating the wonderful species of energy upon which its activity depends.

With the stupendous developments in cardiopathology which have taken place in recent years has also arisen a clearer con-

ception of the action of digitalis in heart disease.

With these developments, both as regards the clinical pathology of the cardiopathies and likewise the application of digitalis to their treatment, the name of Mackenzie¹⁰ will always be associated as pioneer in the minds of English-speaking physicians. To him we owe the creation of auricular fibrillation as a distinct and important clinical type of cardiopathy, though he did not originate the name, but called the condition nodal rhythm in his earlier work. To him, also, we owe the knowledge of the fact that it is in this particular class of cases, namely, auricular fibrillation, that digitalis is so signally effective.

Mackenzie thus expresses the fact: "I have been able to separate from the numerous patients to whom I have given digitalis one group in particular, where the reaction in the heart is so striking as to enable us to recognize the kind of heart in which a beneficial reaction may be expected. It has been known for a long while that digitalis acts upon certain hearts very speedily, causing great slowing in their rate, and at the same time remarkable improvement in the patient's condition. The class of patients in whom this occurs is limited almost entirely to patients with auricular fibrillation."

Mackenzie also discovered that, so far as the heart's rate is concerned, the reaction to digitalis is less effective when the rhythm is normal; that is to say, when the auricles are not fibrillating. Likewise it soon became appreciated that digitalis has little effect upon the rate of the heart, whether there is auricular fibrillation or not, if the heart is under the influence of intoxications, such as alcohol, or the poisons of acute infectious disease.

It was soon discovered that in patients with the normal rhythm digitalis tends to induce irregularity, notably sinus irregularities, extra systoles, heart block and pulsus alternans.

As experience in the use of digitalis increased it became evident that the drug is of little, if any, service in the treatment of sinus arrhythmia, heart block, paroxysmal tachycardia and pulsus alternans. In other words, there is only one kind of cardiac irregularity in which digitalis is effective, and this is auricular fibrillation. To this may possibly be added auricular flutter, a clinical type of arrhythmia which has only very recently been discovered.

In auricular fibrillation the effect of digitalis is magical. In scarcely any other disease can the physician point with such con-

fidence to the effect of his remedies. As a result of the intelligent use of digitalis in these cases the moribund may be restored to life and many years of comparative activity added to their existence.

There is little wonder that we should all be interested in this clinical fact, and, so far as our present conception of the action of digitalis from a clinical standpoint is concerned, our chief interest resides in explaining the marvelous effects of the drug in auricular fibrillation, since in other species of arrhythmia it is practically useless, if not, under many circumstances, positively harmful, and in cases of decompensation, where the rhythm is normal, the results from digitalis are never so brilliant as in auricular fibrillation.

A small group of cases, however, even of auricular fibrillation, are not affected by digitalis. These are usually persons of advanced years, in whom a considerable degree of cardiosclerosis exists.

Experience has shown that a reaction to digitalis in cases of auricular fibrillation bears some relation to the amount of healthy cardiac tissue present. It is in the young that the most striking results are obtained, whereas in the senile heart which has undergone extensive degeneration digitalis may have little effect or fail altogether.

How, then, shall we explain the slowing of the rate and the beneficial effects which are observed when digitalis is administered in cases of auricular fibrillation?

The most natural assumption would seem to be to regard the slowing as due to vagus stimulation, and this is the opinion that has been generally held. There is, however, another explanation. The slowing might be due to direct effects upon the muscle.

It was Lewis¹¹ who first suggested that the real explanation of the pulse slowing by digitalis in cases of auricular fibrillation is a lessening of conductivity of the auriculo-ventricular bundle of His. If this is the true explanation of the slowing, then it is also the true reason for the beneficial effects which accrue from the use of the drug.

Several experimenters have attempted quite recently to solve this problem, among whom may especially be mentioned Cushny and Mackenzie and their co-workers, Lewis, Morris, Silberberg, Price and others.

One method, though an indirect one, of solving the problem, which was early suggested, was to try in cases of auricular fibrillation the effects of drugs which stimulate the vagus center like digitalis, but which are known to have no direct effect on

the muscle. Such a pure vagus stimulant is aconite. The drug was tried in a number of cases of fibrillation by Price, but no slowing of the pulse was observed and no beneficial effects were obtained. This is, of course, negative evidence in favor of the supposition that the action of digitalis is not confined to vagus action.

Another method was to try the effects of drugs which act like digitalis on the heart muscle, but which are devoid of vagus action. Cushny selected helleborein for this purpose, but in experiments with the drug upon cases of heart failure it was found that it induced diarrhea before it could be given in sufficient amount to produce any demonstrable effect upon the disease.

These methods of distinguishing whether the therapeutic effects of digitalis are due to inhibition or to muscle action having failed, another method was tried, and this proved more successful. It consisted in removing the inhibitory action of digitalis with atropine, which, as is well known, paralyzes the peripheral terminations of the vagus in the heart and eliminates all impulses through the pneumogastric nerve. If, now, after having removed all inhibitory action, digitalis should still be found to retain its therapeutic effects in auricular fibrillation, then it would be proven that these effects are not dependent upon inhibition, and must, therefore, reside in the muscle action.

In ten cases of auricular fibrillation Cushny,¹² Morris and Silberberg tried this experiment. Atropine was used before the administration of digitalis to determine the amount of vagus tone in each case. Atropine accelerated the pulse before digitalis in all ten cases, showing that the natural tone of the vagus was good even though the auricles were fibrillating. Digitalis produced slowing and improvement of symptoms in all ten cases. While the digitalis was being used, atropine was administered and the amount of acceleration noted.

Now, if the action of digitalis in slowing the heart is due to stimulation of the vagus, and hence to an increase in inhibition tone, then the effect of giving atropine while the heart is under digitalis would be to accelerate it as much as it would be accelerated by atropine before the digitalis was given, because the effect of atropine is only to paralyze inhibition. If, on the contrary, while the heart is slowed by digitalis, the acceleration produced by atropine paralyzing the inhibition is not as great as it is before the digitalis is administered, then it necessarily follows that digitalis is having some other action besides merely stimulat-

ing the vagus and increasing the inhibition tone.

In Cushny's experiments the amount of acceleration produced by atropine while the hearts were slowed by digitalis was not as great by any means as it was in the same hearts before the digitalis was administered. A curious effect becomes apparent by a study of these results, namely, that the slow heart under digitalis is not only not controlled by increased tone of the vagus center, but is actually in a state of diminished repression, because, since the amount of control exercised by the inhibitory center may be estimated by the amount of acceleration following its elimination by atropine then the fact that a less degree of acceleration follows the use of atropine in the heart under digitalis shows that the heart is that much less controlled. The amount of acceleration under atropine may actually be used to estimate the efficacy of digitalis, because the acceleration lessens with the improvement and increases with the failure of improvement.

There is, then, no other possibility than to assume that inhibition is not involved in the therapeutic effects of digitalis in auricular fibrillation, and the real explanation is found in diminution or depression of the irritability of the conducting system, the sino-auricular node, the node of Tawara, the bundle of His in part or in whole. In strong support of this is the fact that if the digitalis is pushed, partial heart block appears, and heart block is due to no other cause than to a depression of the function of conduction. In the frog, auriculo-ventricular block is often seen following the injection of minimum lethal doses of digitalis. In healthy mammals, however, digitalis block is usually inhibitory, though interference of conduction through the bundle has likewise been observed.

As Cushny states, "another explanation of the slowing in clinical cases of auricular fibrillation might be based on the digitalis substances reducing the excitability of the ventricle," but it seems hardly likely that this occurs to any great extent in man, and it seems difficult to reconcile the view with the known fact that, in the lower animals, digitalis increases the force of the ventricular contractions. *Theoretically, we might expect that digitalis simultaneously depresses the bundle of His and stimulates the contractile fibers of the ventricles.*

In fibrillating cases of heart failure digitalis reduces the rate of the heart, and thus the symptoms in a certain number of cases, but the amount of improvement, the number of cases affected

is strikingly less than in fibrillating ones.

In cases with the normal rhythm, if the digitalis be pushed, partial heart block or sinus arrhythmia are especially likely to develop. In three out of five cases of cardiopathy with normal rhythm Cushny found that the injection of atropine was followed by disappearance of the slowing and irregularity induced by digitalis, and an acceleration of the pulse rate quite equal to that which had obtained before the use of digitalis, and he therefore concludes that in these cases the slowing induced by digitalis was inhibitory in character. In other cases, however, the slowing and block were unchanged by atropine, and must, therefore, have been due to the direct effect of digitalis upon the bundle, as is the case in fibrillation.

The natural inference to be drawn from all these facts is that the inhibitory stimulation produced by digitalis has nothing to do with the beneficial action of the drug in cases of heart failure, and that the benefits derived are due to direct effects of the drug upon the cardiac muscle itself.

SUMMARY.

I. Historically considered, it is interesting to note that the lately-discovered fact that digitalis depresses the conductivity of the bundle of His, thus acting upon the heart by lowering one of the important functions, tends to restore the older view that, essentially considered, digitalis is a sedative much more than a stimulant to the heart.

II. Physiologically considered, that is to say, upon healthy animals under the conditions of laboratory experiments, digitalis slows the heart through vagus stimulation, increases the force of the systole, diminishes the extent of diastole, constricts the vessels and raises the blood pressure. A depression of the healthy bundle has not unequivocally been made out.

III. Clinically considered, it is found that beneficial therapeutic effects from digitalis are found almost exclusively in that particular form of cardiopathy which has received the name of auricular fibrillation. In this condition the effects of digitalis are quite marvelous. In auricular fibrillation the bundle of His may be assumed to be in a condition of pathological excitability and irritability, since normal impulse formation is replaced by impulse formation at multiple auricular foci. The action of digitalis in auricular fibrillation is to depress the function of the bundle of His, and thus to reduce both the formation and the transmission of patho-

logically formed impulses. Vagus stimulation plays no part in the slowing of the heart, except in non-fibrillating cases. Whether or not the force of ventricular contraction is increased is not known. It is not inconceivable that digitalis may produce a simultaneous depression and stimulation of different parts of the cardiac musculature.

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TREATMENT OF TYPHOID

O. H. Brown, of St. Louis, writes that the ideal prophylactic treatment of typhoid is the proper disposal of human excreta. Inoculation of dead typhoid bacilli are of very great value in preventing typhoid and should be used wherever there is suspicion of danger. They are also of pronounced benefit in dealing with typhoid carriers and preventing relapses during the course of an attack of the illness.

Regarding serums the author is of the opinion that one of practical value is yet to be found, but that the results thus far obtained are encouraging. Frazier has recently reported that he aborted 6 cases of typhoid fever with large doses of ipecac administered in salol-coated capsules.

The diet should consist of a small amount of protein, a small amount of fat and a large amount of carbohydrate. The preferable protein food is milk and albumen water. The preferable fat is cream and the preferable carbohydrate is lactose. According to the author, a pound of the latter may be administered in twenty-four hours. This diet should reduce the grade of toxemia and maintain the patient's weight and should, therefore, increase his immunizing power. The patient should regularly be given copious supplies of water.—Interstate Med. Jour.

ON THE TREATMENT OF SYPHILIS*

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SYPHILIS has been so much discussed and its cause and pathology have been made so clear within the last ten years that the treatment has been revolutionized, and it has become necessary to focus our newly acquired knowledge, avoiding rash generalizations on the one hand and an undue conservatism on the other.

The modern treatment of syphilis dates from the years 1905-1909. In 1905 Schaudinn discovered the spirochaete; in 1907 Wassermann published his test; in 1909 Ehrlich issued his remedy "606." It is necessary to remember these dates, for they show how recent is our knowledge and how tentative must be the results in a disease which has such long-continued and far-reaching results as syphilis. It is still much too early to arrive at any final conclusion, and for many years to come it will be necessary to reconsider the results, and perhaps to abandon many of those points which we now consider to be of the greatest importance.

The first advance towards a scientific method of treating syphilis was made when Schaudinn discovered the spirochaete and brought the disease into line with other diseases of microbic origin. Schaudinn was a skilled biologist, the advances of modern tropical medicine were well known to him, and the weight of his authority was sufficient to stamp the value of the discovery, to fix the position of the micro-organism in the animal kingdom, and to point out by analogy the most likely methods of destroying its virulence.

The second step in the treatment of syphilis was also purely scientific. It was made when Wassermann gave a test founded upon the broad principles of pathology. At first, I fear that I was somewhat skeptical as to the value of the Wassermann reaction, and exactly in those cases where I now know that it is of the very greatest help. It was difficult to believe that a young man, seemingly in perfect health, and without a blemish, was suffering from a spirochaete infection simply on a pathological report. I had been brought up in the old school which required some clinical evidence of syphilis before a patient is placed upon a mercurial course. I knew and had taught for years that syphilis was a deceitful disease, the signs and symptoms being intermittent, because periods of apparently perfect health are in-

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tercalated with other periods when the manifestations are plain, but it was difficult to rely upon a test made by another person, however skillful and assured he might be. Two or three cases, however, convinced me. In these cases the absence of symptoms, with a very doubtful history of a sore, led me to give too sanguine a prognosis, and decided me to await further evidence although the Wassermann reaction was positive. Mercury had to be given in each of these cases, and I now have faith in Wassermann's test, especially in the very difficult cases where it is necessary to obtain evidence of syphilis apart from the ordinary clinical signs. We must recognize, however, that the test has its limitations. The reaction is not given by every patient even when there are obvious signs of syphilis; it is not usually positive until five to eight weeks after infection, when the disease has ceased to be local and has become generalized in the body; it is positive in 95 per cent. of cases of "secondary" syphilis and in 75 per cent. of "tertiary" syphilis, whilst it is said to be positive in only 50 per cent. when the disease is latent. Moreover, it labors under the disadvantage of being a laboratory test requiring a skilled worker to carry out the technique. In the future this may be overcome in one or two ways: either the test will be simplified, or we shall educate the next generation to become more skilled pathologists than we are ourselves. For the present it is necessary to rely upon the report of another person, and this is somewhat repugnant to my surgical instinct.

Mercury.—Knowing the cause and being provided with a test, it is possible to employ a course of rational treatment in a disease, and this is what has happened in the case of syphilis within the last few years. Mercury, even in our own times, was administered in all cases of venereal disease associated with a sore. The more cautious, indeed, awaited the appearance of "secondary" symptoms; the bolder gave mercury at once if there was a "hard sore" or "Hunterian chancre." But the drug was given for the most part without any system and without any very clear idea of what was to be expected from its use. Too often it was given merely for the relief of syphilitic manifestations and its administration was stopped as soon as these signs disappeared. Little was known of visceral syphilis; still less of syphilis of the nervous system. It is no wonder, therefore, that syphilis was looked upon as incurable, and it actually was so when mercury was given in this haphazard fashion. The remedy

further fell somewhat into disrepute, because it was recognized that many syphilitic manifestations disappeared spontaneously whether or not mercury was given. A school arose, therefore, which maintained that guaiacum, potassium iodide, arsenic, and other drugs were just as efficacious. It was difficult to gainsay these statements so long as the cause of the disease was unknown and there was a prevailing ignorance of its natural history. We know now that all these drugs may be useful adjuvants but that they do not cure, that is to say, they do not destroy the causal micro-organism in the same thorough manner as is done by mercury.

In this country (England) the rational administration of mercury with a view to cure syphilis, and not merely to relieve the signs of syphilis, is due largely to the teaching and practice of Sir Jonathan Hutchinson. We have learnt from him that small doses of the less irritating forms of mercury administered for long periods of time, whether or not signs are present, are more serviceable than large doses given irregularly and for short periods. But as the cause of syphilis was unknown, Sir Jonathan had only his own acumen and experience to guide him, and it was impossible for him to communicate his knowledge personally, to any very large number of medical men. His methods, however, came into general use, and even before the discovery of the spirochaete it was admitted that syphilis was curable by those who were prepared to take an infinitude of time and trouble about their disease. There was, however, no test upon which reliance could be placed as to whether or not a patient was cured, and the answer to the question had to depend upon time and circumstances. It was impossible, therefore, to lay down any definite rule as to the duration of a mercurial course, or when it might safely be stopped. The length of a course was dependent upon the presence or absence of symptoms after the administration of mercury had been stopped for a longer or shorter period. It resolved itself eventually into the administration of mercury with regulated intervals for about two years. If at the end of this period no fresh symptoms appeared within the next three months the patient was thought to be cured. It is needless to say that this empirical method often led to disappointment, and sometimes to disaster. It became clear, too, as our physicians learnt to associate some of the commoner diseases of the brain and spinal cord with imperfectly treated syphilis, that very many cases of the disease were never

really cured, although there had been no external signs for many years after treatment had been discontinued. The Wassermann reaction seems to give us the necessary clue to the process of cure, and syphilis can only be said to be cured, in the light of present knowledge, when the test is negative and the patient remains without symptoms for at least a year after the use of mercury has been discontinued.

The first variation from the methodical and routine administration of mercury by the mouth or by inunction was the use of intramuscular injections. Experience soon taught that it was especially serviceable in those terrible forms to which the term "malignant syphilis" is applied, when mercury was not well tolerated by the digestive tract, and when the patient could not be trusted to follow out his orders. The method of intramuscular injection was reduced to a system by the late Colonel F. J. Lambkin, A. M. S., whose recent untimely death in South Africa we all deplore. The creams of calomel and metallic mercury which he invented give excellent results. Less pain attends their use than when other formulæ are employed, and in no case in my own wards was their administration followed by troublesome symptoms when care was taken to avoid the nerves and blood vessels of the part where the injections were made. We learnt that it was better to have the creams dispensed in single doses, each in a hermetically sealed tube, rather than to fill the syringe from a larger supply which had been repeatedly heated to render it fluid. It was necessary also to sterilize the syringe by boiling it in olive oil immediately before use. The cream and the oil then mix readily, whereas bubbles are formed when the cream is drawn up into a syringe which has been boiled in water. The routine treatment was identical with that recommended by Colonel Lambkin, namely:

1. Four injections of calomel cream delivered deeply into the gluteal region. Each injection consists of 10 minims of cream, the dose containing $\frac{1}{2}$ grain of calomel. The cream is made according to the formula:

Calomel	5 Gm.
Creosote	
Camphoric Acid	20 Cc.
Palmitin Basis	100 Cc.

2. The injections are made at intervals of a week, and at the end of a month they are replaced by a cream containing 1 grain of metallic mercury in every 10 minims.

The composition of this mercurial cream is:

Metallic Mercury	10 Gm.
Creosote	
Camphoric Acid	20 Cc.
Palmitin Basis	100 Cc.

Two weekly injections of this metallic mercury cream are given.

3. No injections are given for two months after these six doses have been administered.

4. An injection of metallic mercurial cream is then given every fortnight for two months—that is, four injections.

5. No injections are given for four months.

6. An injection of metallic mercurial cream is given every fortnight for two months—that is four injections.

7. No injections for six months.

8. An injection of metallic mercurial cream is given every fortnight for two months—that is, four injections.

9. No injections for one month.

10. An injection of metallic mercurial cream every fortnight for two months.

Colonel Lambkin's method marks a distinct advance in the treatment of syphilis. He regarded mercury as a curative agent, and gave it systematically to that end. It is well adapted for the army and navy, and it can be employed advantageously in hospital practice if the patient can be interested in his cure and will attend once a week for the injection. It is less fitted for private practice, where the mere mention of a needle prick is often sufficient to frighten a patient, while the needle itself is necessarily longer and stouter than that of a hypodermic syringe. Unskillful technique, too, has caused hematmata, painful indurations, and, occasionally, deep-seated abscesses. The knowledge that such accidents have happened has also had some effect in limiting the more extensive use of a valuable method.

In private practice, therefore, when a patient has declined to be treated by intramuscular injection, and recourse has been had to mercury perchloride and potassium iodide, I have tried to make the mixture somewhat less nauseous than that usually prescribed. I applied to Mr. Langford Moore and Mr. S. Sweedie, the dispensers at St. Bartholomew's Hospital, who recommended the following formulæ after making a large number of experiments. In both prescriptions the metallic flavor of the mercury and the acidity of the potassium iodide are successfully masked. The first pre-

scription is for those who like sweet tastes; the second is for those who prefer bitters.

1. Liq. Hydrargyri Perchlor.....3j
- Potassii Iodidi5j
- Syrupi3j
- Mucilag. Tragacanth.....5ij
- Ol. Amygdal. Ess. (sine HCN).....mij
- Ol. Cinnamomi.....mij
- Aq. Chloroformad 3viii

M. Fiat mist.

Sig.: Take an eighth part three times daily.

2. Liq. Hydrargyri Perchlor.....3j
- Potassii Iodidi5j
- Tinct. Chiretæ3jss
- Elixir Glucidimxi
- Infusi. Gentianæad 3viii

M. Fiat mist.

Sig.: Take an eighth part three times daily.

Salvarsan—I cannot speak from personal experience of the value of the arylarsonates and soamin. The accounts of these remedies did not appear to be very satisfactory, and before I had made up my mind to employ them they had been replaced by salvarsan. It has been extensively employed in my wards, and I think highly of it as a remedy for syphilitic manifestations, although we have not yet sufficient evidence to prove that it cures the disease. I have always used it, therefore, as an adjuvant to mercury, and never by itself or in place of mercury. The present working hypotheses are that salvarsan kills adult and free spirochaetes, while it has but little effect upon those which do not lie in close relation with the blood and lymph paths, upon the immature forms, or upon those which are in an intracellular stage. Whether or not we choose to employ one of these hypotheses, two great facts stand out in connection with the action of salvarsan in syphilis—it cures the symptoms of syphilis in a shorter time than mercury, and it can be employed as a test for syphilis, because in many cases when salvarsan is given a syphilitic patient whose Wassermann test is negative, the first effect of the injection is to render the reaction positive, although in a short time it again becomes negative. Salvarsan promises, therefore, to be useful as a test for the cure of syphilis effected by other means.

Much benefit is derived undoubtedly from the use of salvarsan, but it is useless to expect miraculous effects from a single injection. It is necessary to use salvarsan methodically if the best results are to be obtained, and the injections must be repeated at intervals of a fortnight to a month. If they are given too near together time is not allowed for the large dose of arsenic to be eliminated, and the symptoms attending the second dose may be more severe than the first.

The net outcome of our experience with salvarsan has been that it serves as an excellent adjuvant to mercury in the treatment of syphilitic lesions. It has proved especially useful in cases of chronic superficial glossitis, in active syphilitic periostitis, and in ulcerating syphilides of the skin. It has been less serviceable in craniotabes, and in cases of osteitis associated with the formation of sequestra, because in these conditions the pyogenic organisms are more important than the syphilitic infection; neither have the results been very satisfactory in cases of syphilitic arthritis, doubtless because many of these inflammations are also associated with a tuberculous infection. So far as we have been able to ascertain no serious accident has occurred in our cases. We have recognized that we were dealing with a powerful arsenical compound and we have endeavored to eliminate the more obvious risks.

In Parasyphilis.—Personally I have not hesitated to use it in private when the patient desired it, and in one case of parasyphilis I administered it—against my own wish, but at the earnest desire of the patient himself.

A gentleman who had suffered for many years from tabes had a definite Wassermann reaction; he was nearly blind, and he was unable to walk more than a short distance. I assured him that there was very little probability, on pathological grounds, of his obtaining any good from salvarsan and that he might be made worse. He decided, however, to take all risks, and felt so much relief from the first injection that he determined to have a second. The first injection was given on July 5, 1911, the second on October 4—0.5 gram each time. He writes on May 8, 1912: "I can now hold my water unless the bladder is overfull from drinking three cups of tea or taking a little sherry, and then I pass it more easily than I used to do before treatment. I have improved in balance since the last injection, as I can stand up on my toes without touching anything; my hearing has remained almost normal since December—that has improved more than anything else. My sight has improved a little. I can see light more strongly, but it is very little better. My knee-jerks are no better, and my memory, I think, is not so good for names of people and places." To this his wife adds: "His memory is quite as good or better. I am very pleased to tell you what I think of the treatment you gave my husband last year. It has done him a great deal of good and his life is more worth living, though the cure is, of course, not complete. To give you details: Before the treatment I always had to wait for a favorable opportunity. Now his mind is clear and he can grasp and discuss serious affairs at any time. Formerly he could not be left alone at any time. He could not remember to sit still, and he could not cross a room without help. His balance is now so much better that he can walk anywhere in the house and garden by himself. He is safe not to fall. I am to tell you he can stand up straight alone and put on his coat by way of proving that the balance

is good. His hearing is very much improved. The control of the bowels returned, but I regret to say that since January it has failed, and it appears to be weaker than during the previous six months. The bladder remains as before. Now and then he can pass water without the catheter, but with no regularity. As regards distance, leaning heavily and distressing himself considerably he could walk two miles. He can now walk the same distance with ease and not leaning on anyone—simply being guided—and will probably walk another mile later in the day. His eyesight is not improved."

This patient seems on the whole to have received benefit from salvarsan, and it will be interesting to discover from similar cases how far this was due to the drug and to what extent it was the result of a firm belief in its efficacy. The positive Wassermann proves that the spirochaete infection was still active, though it was many years since he contracted the disease. The results seem to show that—as might have been predicted—his cerebral functions have improved, while his spinal nervous system remains unaltered.

Technique.—The routine of our technique for administering salvarsan has always been the same. It has been given by intravenous injection, and the patient has been kept in bed for twelve or fourteen hours previously. The skin has been prepared by sterilizing it with a 2½ per cent solution of iodine in rectified spirit. The veins are rendered prominent by the application of a fillet, and when the veins at the bend of the elbow have been used the patient has been made to grasp a ruler or a staff, as in the days of blood-letting. The needle used is that recommended by J. E. R. McDonagh, which is bevelled to a point on the upper surface instead of beneath, as is usual, and it is provided with a slightly concave plate of metal to allow it to rest more securely on the skin—two small modifications which make the operation of puncture of the vein much easier. It is unnecessary to give either a local or a general anesthetic when the veins can be made prominent, as is usually the case. A skin incision is unnecessary, and with a well-directed and sharp needle the pain is momentary and infinitesimal. The syringe and needle are filled with freshly prepared and sterilized salt solution and the vein is punctured obliquely upwards. The fillet is then relaxed, and the contents of the syringe are emptied into the vein. This will show whether the vein has been fairly entered, for if it has been missed or transfixied the salt solution will form a bulla owing to the extravasation of fluid into the surrounding tissues. If the salt solu-

tion enters the vein freely the syringe is filled with salvarsan solution, which is then injected by syringe-fuls at a time when the whole pint has been introduced. When all the salvarsan solution has been introduced a syringe-ful of salt solution is injected to wash out the needle and to free the tissues from any salvarsan which might be adherent to them. Both the salvarsan and the salt solution are kept at a temperature of 105° F. The needle is then withdrawn, a pad and bandage is applied over the prick, the arm is kept in a sling for a few hours, and the patient is allowed to get up when he feels inclined to do so. The salvarsan solution is made by dissolving 0.6 gram of salvarsan in a pint of sterilized salt solution made from freshly prepared distilled water. The solution is neutralized or rendered faintly alkaline by the addition of a 1 per cent solution of sodium hydrate. It is necessary to have everything sterile, and it adds greatly to the ease of the operation if the rubber junctions connected with the three-way tap of the syringe are made of such thick rubber with so small a bore as to make it difficult to fit it on to the tap, because the ordinary thin rubber tubing is apt to slip off or become flattened if it kinks while suction is being made. When the needle is once fairly introduced care must be taken that it does not slip out of the vein. It is therefore handed over to the sole care of the patient if he is competent to look after it, or, if he is nervous, it must be given in charge of a nurse. If the needle slips out, or if the vein is not punctured fairly at the beginning of the operation, it is much better to employ another vein rather than to attempt any rectification in the one first chosen.

Our chief difficulties have been to find a suitable vein. Many of the men have been so self-indulgent as to become fat with lax tissues, while in women it is by no means easy to make the veins of the arm prominent. In some cases we have used the internal saphenous, in others it has been necessary to give a general anesthetic and dissect out the vein at leisure.

Value of Salvarsan.—The sequelae have been trivial—headache, a rise of temperature to 103° to 104° F., with or without a rigor, vomiting, diarrhea, and stomach-ache, but they have caused no anxiety, and the patient has always been well on the following day. In the majority of cases the patients felt no inconvenience at all. Two bad results have come under my observation, and in both an intra-muscular injection of salvarsan had been made. In one case there was extensive sloughing of the

tissues at the seat of the injection; in the other an edematous and painful swelling occurred just below the angle of the left scapula where salvarsan had been injected. The swelling suppurred, was laid open, and in due course healed; but it was a long time before the edema disappeared.

It seems, therefore, that salvarsan is a useful remedy if its limitations be recognized. How far it is useful in the initial stage of syphilis I do not know from personal experience. It is said that primary sores heal much more quickly if salvarsan is given than if it is not given, but the glands which enlarge as the result of the infection remain harder than normal, although they have returned to their natural size. The drug is very useful in the secondary and tertiary stages in those cases where the lesions are due more to syphilis than to pyogenic micro-organisms. It is serviceable, too, in some cases of parasymphylis, but to what extent and under what conditions I am again ignorant from want of personal experience. We still need more information about the treatment of heredo-syphilis with salvarsan, whether it is best to treat the child through the mother, by means of an intermediary, as a goat or cow, or directly—that is, the child itself.

Broadly, I do not think that syphilitic lesions are more completely cured by salvarsan than they are by mercury, but the result is certainly brought about more speedily; and as the administration of salvarsan does not prevent the simultaneous employment of mercury, the two remedies may be serviceably used together. But until we have much more evidence and have proved its efficacy in a very large number of cases for a period of several years, we shall not be justified in saying that salvarsan cures syphilis.

It is necessary to ask, What are the contraindications for the use of salvarsan? About twenty-three fatal cases have been recorded, but several of these were moribund at the time of administration, some were associated with a faulty technique, and in others it was clear that the drug should not have been employed. It seems from the evidence at present available that the intravenous injection of salvarsan is a safe method of procedure if care be taken to administer it in a rational manner and to reasonably healthy persons. The further question then arises, At what period in syphilis should salvarsan be given? The working hypothesis is that the drug destroys the active spirochaetes with which it is brought into contact. If this hypothesis is correct the sooner a dose is given after

infection the more likely it will be to answer its purpose, for we must assume that the microbes are localized at first to the seat of inoculation and to the neighboring lymphatics and glands. We should also like to know how often salvarsan must be given and at what intervals, remembering that it is desirable to give as few injections as is consistent with a due regard to complete destruction of the spirochaetes.

Combined Treatment.—What is the best treatment for syphilis in the present state of our knowledge of the disease? Taking, for the sake of example, the case of a surgeon or of a nurse who is inoculated in the course of professional duty, the wound should be well washed under running water, like a wound obtained in the *post-mortem* room. It should then be dried and covered with an ointment consisting of 10 grams of calomel in 30 grams of lanolin. This mercurial ointment should be gently rubbed into the wound for five minutes, and a dose of salvarsan (0.6 gram) should be given intravenously. The prophylactic action of the mercurial ointment appears to end—at any rate experimentally—within twenty-four hours of inoculation; the salvarsan is said to be serviceable in checking the generalization of the disease even when the seat of inoculation has become characteristically indurated and the lymphatic glands are enlarged. The fact, however, that the lymphatic glands do not return wholly to their natural condition after the administration of salvarsan in early syphilis rather inclines me to distrust the drug as a sole remedy, and should lead one to give mercury in some form or another as soon as possible.

A Wassermann test should be made at an early period after inoculation, although it will probably be negative in the very earliest stages, for, as has been stated already, our present knowledge shows that it is usually positive in five to eight weeks after infection; it is positive in 95 per cent of cases during the secondary stage, and in 75 per cent during tertiary manifestation, but it is only positive in 50 per cent of cases where syphilis is latent. Mercury should be given at once when the infection is undoubted, but in the more difficult cases, where the diagnosis is doubtful, it may be withheld until a positive Wassermann's reaction has been obtained.

Preferably the mercury should be given by intramuscular injection, and Colonel Lambkin's formulae are quite satisfactory as far as I have used them. If, for any reason, the intramuscular method cannot be employed inunction may be employed.

But when, as in ordinary private practice, the drug has to be given medicinally, I think the perchloride is better than the gray powder which has been used in England for a long time past. It seems to me that so long as mercury is given in small doses, systematically, and for long periods of time, the exact preparation used does not matter very much. The mercury should be given with regulated periods of rest, and a Wassermann's test should be made at the end of each period just before the mercury is recommenced. If the test is negative an intravenous injection of salvarsan may be given with a view to elicit a positive result. If the test still remains negative after this injection the mercury may be discontinued for a further period so long as there are no signs of syphilis, and at the end of a further period of two months the test should be again employed. Marriage may be permitted under these conditions when the Wassermann test has remained negative and there have been no syphilitic symptoms for at least a year.

In this manner we shall avoid giving mercury for a longer time than is absolutely necessary, while the drug will be continued until the syphilis is cured, even when the absence of symptoms might seem to make a further mercurial course unnecessary. We shall also have taken a step in advance of Colonel Lambkin, who was obliged to take a time limit with absence of symptoms as a guide for discontinuing a mercurial course because the scientific test had not yet become available.

There are two objections to the use of Wassermann's test as an answer to the question whether or not an individual is cured of syphilis. In the first place, it is purely a laboratory test, and we are consequently at the mercy of the pathologist who makes this examination. This objection is easily surmounted by always employing the same pathologist. The second objection is much more serious. It involves the fallacy that Wassermann's test is an absolute proof of the presence or absence of spirochaete infection, and even in the light of our present knowledge it is certain that we are not justified in making such an assumption, for the figures given above show that the test remains negative in a certain percentage of cases in every stage of syphilis. Clinical experience and the caution begotten of it must still guide our advice therefore, but recent advances in the treatment of syphilis have been so great that we need not despair of obtaining some reliable test even in the immediate future.

INFECTION OF THE URINARY TRACT IN CHILDREN BY THE COLON BACILLUS*

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Edinburgh, etc.

THE following remarks are founded mainly on the observation of 71 cases of various types of acute bacillus coli infection which have been under my own care. It is scarcely ever possible to decide in any individual case which route the bacilli take in passing from their original harmless position to where they ultimately set up disease. It is, however, quite certain that they are sometimes carried there by the bloodstream, sometimes pass in by the lymphatic channels, and sometimes ascend from outside by the lumen of the urinary tract. I would especially emphasize the great probability that the organisms often follow a combination of these paths in seeking their destination.

Predisposing influences.—When the bacilli reach the urinary tract their fate varies according to circumstances. Generally, in all probability, they are either washed out immediately by the urinary stream or else destroyed in the tissues or in the normal urine; or they may remain for a time doing little or no harm. The normal colon bacillus seems to have little pathogenic effect on healthy mucous membranes. Had it been otherwise the female urethra would surely not have opened so close to the anus. If the virulence of the organisms has been increased by morbid processes in the intestine or otherwise, or the normal resistance of the tissues lowered by local or general disease; or, perhaps, if there has been some retardation of the flow of urine, so that the bacilli have been retained abnormally long in contact with the tissues, then more or less violent inflammation, with corresponding symptoms, may be set up. The clinical histories, therefore, very often (32 times out of my 71 cases) give a definite account of the symptoms of the urinary disease having set in during, or shortly after, some sort of weakening disease or experience. In three-fourths of the cases in which such a predisposing ailment is noted it is of the nature of bowel disturbance. The analogy of adult cases leads us to believe that any cause which retards the downward passage of urine will predispose to bacillus coli infection. Cases of congenital hydronephrosis and dilated ureters, with hypertrophy of the bladder, are extremely apt to be infected in this way in the early days

*Read before the Section of Diseases of Children at the Seventeenth International Congress of Medicine. Lancet, Aug. 16, 1913.

or weeks of life. In fact, if we find much pus, with colon bacilli, in the urine of a baby of a few days old, and can make out on palpation an enlarged and thickened bladder, we are justified in diagnosing congenital hypertrophy of the bladder with dilatation of the upper urinary passages.

Clinical features. Age.—The disease may begin within the first few weeks of life, and is about twice as common in children under two years as it is after that age; and it is also, generally, much more severe in the younger children. Occasionally, however, it presents its severest and most typical forms in later childhood. As a rule, when the disease occurs in infancy, the boys are affected at a much earlier age than the girls. There is a type of extremely chronic and intractable case which is almost, if not entirely, confined to later childhood. These cases generally begin after an acute illness—mostly measles; and many of them turn out to be tuberculous.

Sex incidence.—The relative proportions of the two sexes affected, and the ways in which the clinical details differ in boys and girls, are among the most striking features of this infection. An analysis of these differences might possibly throw some light on the course of the infection. The following are some of the points. 1. In all the lists of cases which have been published the number of girls is much larger than that of boys. Among my cases the girls formed 79 per cent. 2. In young infants, as Thiemich has pointed out, the illness begins more often with diarrhea than in older children. We also find that the diarrhea is more frequently a marked symptom in boys than girls. In other words, "primary" cases of acute pyelitis—i.e., cases setting in during apparent good health—are commoner in girls than in boys. 3. Further investigation shows that during the first six months of life far more boys than girls were affected, although after the sixth month girls largely predominated. When we take a larger number and analyze the ages and sexes of 224 babies under 2 years taken at random from 13 authors, we find that, although the numbers are less striking, there is still a considerably greater proportion of boys during the first six months than at any later age. 4. The extreme rarity of rigors at the onset of the symptoms in boys is noteworthy and interesting when compared with the frequency of this symptom in girls. In none of my 15 male cases was this symptom ever noted at the outset, although it was always specially inquired about. Among the records of 52 cases of bacillus coli infection in boys of 2 years old and under I

have only found the occurrence of a rigor mentioned in one or two instances, while in girls it is very common. 5. Mild cases of bacillus coli infection are rare in boys in my experience. In male patients the attacks of pyelitis are apt to be severe, and there is usually in them a much larger proportion of cases of fatal pyelonephritis than among girls.

The significance of these clinical differences between the sexes is not quite clear, but the great preponderance of female patients seems, as is generally admitted, to force us to the conclusion that ascending infection by way of the urethra must be a common occurrence; and the excess of girls over boys probably represents the frequency with which urethral infection takes place. It seems very unlikely that the colon bacilli can find their way up the lumen of the male urethra. The greater prevalence of antecedent diarrhea in boys would probably cease to exist if we were able to subtract from the list of girls the primary cases infected per urethram.

The frequency of pyelonephritis in the male sex may be explained by the infection having usually in them passed straight from the bowel to the kidney and pelvis, and not having ascended from below. The facts that rigors are so very rare in acute pyelitis in boys, and in pyelonephritis in both sexes, while they are so common in acute pyelitis in girls (in whom we suspect an ascending infection), suggest the idea that the ureters may be the particular portion of the urinary tract from irritation of which a rigor most readily arises. The frequency with which rigors are met with in ureteral calculus may be held to support this view.

Symptoms.—These depend on the severity of the inflammation and the part of the tract affected. When the disease has not spread beyond the bladder it is often impossible to recognize any symptoms at all, apart from the pus and bacteria in the urine, especially if the children are already ill at ease from intestinal or other disorders. Sometimes, however, careful questioning will bring out a history of increased frequency of micturition, with uneasiness or pain during the act, and perhaps also of some hæmaturia or of an offensive odor in the urine. There is little or no pyrexia. Much the most important cases of this infection are those in which the parts above the bladder are invaded—pyelocystitis, pyelitis, and pyelonephritis—and the striking peculiarity about their symptoms is the trivial and equivocal nature of the local manifestations and the extreme severity of the general disturbance—acute distress, pros-

tration, fever, etc. In a few of these cases one finds the early symptoms those of cystitis only, and then the temperature runs up suddenly, often with a rigor, and the clinical features of pyelitis develop. In others, symptoms of pyelitis set in obscurely, while the child is very ill with bowel disturbance. Very often, however, the symptoms which we associate with acute pyelitis begin suddenly in the midst of apparent good health.

The temperature rises rapidly, often reaching 103°-105° F., or even higher, and frequently assuming a remittent type which recalls that of a typical enteric fever. This may go on for many weeks with or without marked periods of intermission, but under alkaline treatment the pyrexia generally ends by crisis within 48 hours, although in about half the cases the temperature tends to rise again a few days after. The frequency of well-marked rigors in young children with acute pyelitis is interesting, because rigors from any cause are so very rare at this age. I do not remember ever having seen an infant under two years who had had a well-marked rigor and who had no pus in the urine. Vomiting occurs in more than half of the cases of acute pyelitis, especially during the first few days of the attack.

The extreme misery, restlessness, and general tenderness from which these children suffer when their temperature rises form valuable and important diagnostic signs. They are drowsy and often delirious, and if they are very young infants they frequently squint. The respiration-rate, compared with that of the pulse, is often considerably quickened, although the respiratory organs are unaffected. In many cases there is a great disinclination for food, and even for fluids. The local symptoms are either slight or apparently quite absent. Indefinite colicky pains may be present, but the children are so irritable that the exact distribution of any tenderness that is present is often difficult to ascertain. Frequency of micturition is common, usually at the onset of the illness. In older children dysuria is much more likely to be troublesome than in infants. I have never found well-marked vulvitis or vaginitis.

The microscopic and chemical features of the urine are much the same, whether the case is one of simple cystitis, pyelitis, or pyelonephritis; but in pyelonephritis there is rather more albumin present than in pyelitis or cystitis, and a few tube-casts may sometimes be found. Little or no help is to be expected from the character of the epithelial cells found in the urinary deposit.

The urine on passing usually looks slightly cloudy or opalescent, is distinctly acid, and contains a considerable number of pus cells and bacilli of the colon group. On standing it remains cloudy for a long time, and a definite deposit is slow to form. Although the urine generally shows a marked acidity when it is passed, the reaction changes rapidly on standing, and in time the urine becomes alkaline. On microscopic examination of the urine the pus is rarely large in amount. In coli-pyelitis there is often no pus to be found when the temperature first goes up. Sometimes the pus varies greatly in amount on different days, and may even disappear for a day at a time.

The differential diagnosis of acute colipyelitis depends on: (1) the presence of pus and colon bacilli in the urine along with the above severe general symptoms; and (2) the absence of any signs of organic disease outside the urinary tract which could account for the condition. A diagnosis of the exact distribution of the bacillus coli lesions in the urinary tract cannot be made with any approach to accuracy if the patient is a young child. Roughly speaking, patients who have pus and colon bacilli in an acid urine, with no rise of temperature and little or no distress, usually have cystitis only; remittent pyrexia with great general misery signifies pyelitis; while severe collapse with or without pyrexia often indicates a grave implication of the kidney. If a case of bacillus coli infection with high fever, which has been diagnosed as acute pyelitis, undergoes alkaline treatment thoroughly, and does not show a considerable fall of temperature within 48 hours of the urine having become alkaline, this signifies that the kidneys are badly affected.

Treatment.—In ordinary acute cases the first indication is always to ensure a free discharge of urine, usually by giving large quantities of fluid to drink. If the patient refuses to drink enough, the fluid must be administered through a stomach-tube or by the rectum. The second indication is to see that the bowels move adequately. The best drug for this purpose is probably sodium phosphate, because it helps in the alkalization of the urine. An occasional dose of calomel is also often beneficial.

The other important forms of treatment are: (1) *alkalinization of the urine*; (2) *administration of antiseptics*; and (3) *the use of serums and vaccines*. The aim of the alkaline treatment is to render the urine alkaline, and to keep it so for a week or two after all the pus has disappeared and the signs of uneasiness have ceased. Al-

though I have generally used potassium citrate for this purpose, other alkaline salts would probably prove equally efficacious if given in sufficient quantity. The dose of potassium citrate necessary varies considerably in different cases. The smallest amount which I have ever found successful in a severe case of coli-pyelitis was 24 grn. in the day, in a girl aged 10 months. Generally one should begin with 60 grn. if the patient is under 2 years old, and it will often be desirable to give double this amount. Occasionally 150 grn. or 180 grn. in the day has to be given before the urine becomes definitely alkaline and the temperature falls. Sometimes large doses set up diarrhea; and when this is the case the neutralizing effect on the urine is necessarily weakened. Occasionally the urine becomes alkaline within a day or two after beginning the treatment; generally in four or five days; rarely six or seven days, but never longer. The effect of the alkaline treatment is best estimated by studying the temperature charts; because, when the fever lessens, the other symptoms practically always improve. The fact that great benefit follows the alkalization of the urine in acute cases of bacillus coli infection of the bladder, ureters, and pelvis is, I think, quite established. How the treatment effects this, however, still requires investigation.

Antiseptics given by the mouth may act beneficially in two ways. In the first place, they may lessen the infected state of the urine by their bactericidal action in the alimentary canal. In many cases of pyuria from bacillus coli infection a dose of calomel is followed by a distinct temporary improvement. The disinfectant action of the mercury in the intestine apparently improves the state of the urine by lessening the number of bacteria which are leaking into it from the bowel from time to time. Salol, in doses of 2 to 4 grn. three or four times a day, is certainly often helpful. I have found it of most use when given in addition to alkaline treatment, especially in the later stages. Urinary antiseptics, such as urotropine (hexamethylenamine) and its various derivatives, which act directly on the bacteria by liberating formaldehyde in the urine, have proved of great value in the treatment of urinary infection by the typhoid bacillus and certain other organisms. They are, however, disappointingly ineffectual in most cases of colon bacillus infection.

Of the serum treatment which has been found successful by Cacioppo, Comba, Dudgeon, and others, I have had no experience. Vaccines I have used in a few

cases, but with disappointing results. In the hands of others I have known them occasionally quite successful in acute cases, especially in older children.

Edinburgh.

CIRRHOSIS OF THE LIVER

N. S. Davis, Jr., of Chicago, thinks that cirrhosis of the liver can sometimes be successfully treated without surgery, and that even when extensive it may be compatible with apparent health, as long as the hepatic functions are well maintained and toxic symptoms are not apparent. The anatomic changes, of course, cannot be repaired but the fatality of the disease does not depend on the degree of the cirrhosis. When we speak of the hepatic cirrhosis of the disease we must not only think of it as an anatomic change in the liver but also of disturbed function and intoxication, and treatment must be directed to these. By experience with renal diseases Davis has become convinced that often coincident hepatic inactivity precipitated dangerous and fatal intoxication from toxins or infectious matter in the gastro-intestinal tract and that the success of the treatment of the kidney disease by milk and free catharsis is due more to effects produced on the liver and intestines than directly on the kidneys. He therefore resolved to try the treatment in hepatic cirrhosis and as there was a suspicion of chronic infection of the liver he also resolved to experiment with hexamethylenamine. Four cases all with ascites and other characteristic symptoms are reported which were improved or apparently cured by a limited milk diet of only six glasses and above described medical treatment and regular moving of the bowels. Alcoholic beverages must be absolutely forbidden both during treatment and after its discontinuance. When improvement begins to be apparent the amount of milk may be increased from six to eight glasses a day, and later fruit is allowed. The variety is otherwise increased later but a milk or almost exclusively a milk diet must be kept up for at least two months, and an abstemious diet of simple kinds of food directed later. It is doubtful, Davis thinks, if the hexamethylenamine contributed materially to the improvement in these cases.—*Jour. A. M. A.*, July 26, 1913.

IN PERFORMING BRISEMENT FORCE of a knee stiffened by prolonged immobilization in a splint or cast, the utmost caution should be observed. Under these conditions the bones are very brittle and a fracture is easily produced.—*Amer. Jour. Surg.*

Progress in Materia Medica and Therapeutics

THYMOL FOR THE DISINFECTION OF MUCOUS MEMBRANES

For the disinfection of the skin, as well as for rendering mucous membranes sterile, Hoffmann, of Greifswald, has found a 5 per cent thymol alcohol very effective. In a long series of experiments upon animals the author followed the following procedure: Where the intestinal lumen is opened the isolated portion of the stomach or intestine is wiped dry and a gauze sponge soaked in the thymol alcohol is then applied to the mucous membranes. The application is usually made for about one minute and never more than two minutes. Where this precaution was not observed necrosis occurred in a number of cases. A precaution should also be taken not to allow the solution to touch serous surfaces. The author has found this method very effective in all cases in which the disinfection of a mucous membrane is desired, especially in gynecological work.—Beitr. z. klin. Chir., Band VIII, Heft 3.

EMETINE IN AMEBIC DYSENTERY

The most recent drug recommended for amebic dysentery is emetine, the alkaloid of ipecac, which is supposed not only to free the stool from parasites in a remarkably short time but also to destroy the organisms in the deeper structures of the intestines if given subcutaneously. G. Baermann and H. Heinemann have used the Merck preparation and while they have found it more potent than any of the others, could not obtain a cure of the disease in all cases. The dose employed was 1/6 to 2 grn. dissolved in saline solution and repeated every second to eighth day. The amebae invariably disappeared from the stool in 6 to 72 hours but could generally again be found after 4 to 70 days even where the dose was increased to grn. 3. Subcutaneous injections occasionally give rise to somewhat painful infiltrations; larger or frequently repeated injections may cause slight constitutional disturbances such as nausea, lassitude, slight vertigo and loss of appetite. Vomiting was seen only rarely. The drug may also be injected intravenously in doses of 1 to 3 grn. with only reddening of the face, slight vertigo and nausea. If the intravenous dose is increased to

4½ to 6 grn. there may however be alarming symptoms 2 to 5 minutes later in the nature of a general vascular paresis with dyspnea, vomiting, unconsciousness and slowing of the pulse. The kidneys are never irritated. All in all, 22 cases were treated and of these, 6 have remained free from amebae. Three of these later came to autopsy and no organisms could be found in the organs.—Muench. med. Woch., May 27 and June 3, 1913.

ALUMINUM LACTATE

Liquor aluminii subacetici as employed in Germany is an 8 per cent aqueous solution of basic aluminum acetate which decomposes very readily. The addition of 3 per cent boric acid presents no special advantages and substitutes are also apt to spoil with time. A. Perutz recommends the concentrated (7 per cent) solution of aluminum lactate as a stable substitute. This solution does not become turbid with time though if very old, moulds may grow in it. These are easily removed by filtration after which the solution may be boiled. The lactate solution does the same service as the acetate and may be employed in all cases where the latter is indicated.—Muench. med. Woch., June 10, 1913.

TREATMENT OF PULMONARY EMPHYSEMA

In addition to the usual treatment of the asthmatic paroxysms in pulmonary emphysema accompanied by asthma and chronic bronchitis, S. I. de Jong recommends the following solution to be sprayed in the nose:

Atropinæ Sulphatis	grn. ij
Sodii Nitritis	grn. ix
Glycerini	f. 3ss
Aquæ Destillatæ	ad f. 3ss

The regular treatment which this spray is to supplement many consist in injections of morphine or inhalations of ethyl-iodide or the fumes of stramonium.

If there is evidence of cardio-renal weakness the spray should be used with caution and a solution of eucalyptol in glycerin may be used instead. Insufficient expectoration in the intervals between paroxysms is a difficulty often encountered. For this condition the author recommends sulphurated antimony with or

without tincture of lobelia. Potassium iodide seems to induce excessively copious expectoration and gastrointestinal disturbances but may occasionally be found useful especially in the obese.

When the secretory flow is excessive at the close of periods of dyspnea, terpin hydrate is valuable. Other measures that have been recommended are the administration of ergot or of certain mineral waters rich in sulphur.

When the emphysema is complicated by infectious diseases, digitalis, sparteine, Dover's powder, camphorated oil, and subcutaneous injections of oxygen are useful. When there is arteriosclerosis and chronic nephritis the author advises rest in bed, mild saline purges, milk and salt free diet, theobromine, caffeine and small intermittent doses of digitalis.—*Jour. de med. de Paris*, April 12, 1913.

CODEONAL IN NERVOUS IRRITABILITY AND EXHAUSTION

Leva, at the Psychiatric Clinic of the University of Strassburg, conducted a series of experiments with codeonal in patients who suffered from mild or more severe psychoses, neuroses and organic nervous diseases with general neurasthenic symptoms and somatic pains. The customary dose was two, three or four tablets of $2\frac{1}{2}$ grains codeonal given after the evening meal.

In some cases of hypomania, depressive excitation and dementia precox, the general motor unrest and excitement were not markedly influenced even when the dose was increased. The insomnia here could only be treated with hyoscine. The effect was more pronounced in patients during the declining stages of a psychosis where conditions of slight periodic excitations with insomnia were present. A quiet and refreshing sleep was the rule after two tablets of codeonal in patients who had just exhibited severe hysterical excitement. A similar effect was seen in patients with organic affection of the central nervous system and bodily distress.

In children with severe chorea minor and psychosis, one tablet will as a rule induce a quiet sleep as soon as the motor unrest begins to decline. The narcotic effect of codeonal is not however sufficiently pronounced in cases showing marked emotional fluctuations with internal tension and inhibition.

Variations in blood pressure to any marked degree were not observed in any of the cases treated. No disagreeable general symptoms were noticed.

The observations of the author show that codeonal is usually not sufficiently sedative in psychoses and neuro-psychoses accompanied by general motor unrest or severe emotional excitement. The preparation is, however, an excellent sedative and hypnotic in conditions of mild general nervous irritability and exhaustion and in organic nervous affections accompanied by somatic pains.—*Med. Klinik*, 1913, No. 23.

THE EMETIC ACTION OF APOMORPHINE

AFTER detailing a review of the literature of the emetic action of apomorphine Eggleston and Hatcher (*Jour. Pharm. and Exp. Therap.*, 1912, III) give their evidence which shows conclusively that apomorphine causes emesis by acting upon a central controlling mechanism. One of their quotations is well worth reciting; in 1869, when the drug was discovered, Gee remarked, "it is clearly an emetic which does not act by causing direct gastric irritation (subinflammation), but which acts as blows upon the head, foul smells or sights, or imaginations act." The more striking points in the evidence are as follows: If emesis were the result of a local gastric reflex one would expect it to result from a smaller dose introduced directly into the stomach than when it reached this organ through the circulation. However, the dose by stomach tube is respectively 125 and 95 times larger than by vein and intramuscular injection. Vomiting occurs much more rapidly after intramuscular than after gastric administration. Moderate dilution does not influence the size of the effective dose, which would hardly be the case if irritation of the gastric mucosa were the cause of the emesis. After intravenous and intramuscular administration no apomorphine was found in the vomitus. This was proven by an ingenious method. A large dog was given the drug several times intravenously, each dose sufficient to produce emesis. The vomitus was collected, evaporated to a small bulk and injected into a much smaller dog with no signs of vomiting; suitable doses of apomorphine had produced emesis immediately preceding and following the injection of the vomitus. After a single large intramuscular injection no apomorphine was found in the vomitus by a similar test. Finally, apomorphine can produce all the symptoms of vomiting (excepting of course the actual expulsion of the gastric contents) without the presence of a gastrointestinal tract. This was proven by excising the stomach and intestines without development of shock and in such animals the salivary and muscular phenomena "pro-

ceed exactly as in the normal animal, so that we can say unhesitatingly that no one who might see a normal dog and an eviscerated one vomit could distinguish the normal from the eviscerated animal so far as the vomiting act is concerned." They have also shown, by the same method, that the emetic action of the digitalis substances is central; this experiment has been confirmed in the laboratory.—Cleveland Med. Jour., June, 1913.

ANHIDROTICS

Anhydrotics are drugs that diminish or check perspiration. Certain pathological conditions, such as pulmonary tuberculosis in its later stages, are accompanied with profuse sweating called colliquative, from appearing as though the tissues were absolutely melting into perspiration. Several substances possess the power to correct this exhausting condition. Under another heading a formula was given composed of exsiccated sulphate of iron, extract of belladonna and extract of nux vomica. In most instances such a preparation will serve every necessary purpose. Zinc sulphate is many times substituted for the iron salt:

Zinci Sulphatisgrn. xii
Ext. Belladonnagrn. i
Ext. Nucis Vomicaegrn. iii
M. Div. in pill No. xij.
Sig.: One pill three times a day.

Aromatic sulphuric acid in doses of 20 drops, well diluted, three times a day, is an old and reliable remedy.

Camphoric acid is a very efficient anhydriotic in doses of from 15 to 30 grains given in capsules several hours before the time at which its effect is desired.

Agaric acid, sometimes called agaricin, is most efficient in doses of from 1/30 to 1/15 of a grain. It should not be given hypodermatically, as it is very irritating to tissues.

The alkaloids of belladonna, hyoscyamus and stramonium are powerfully anhydriotic.

Picrotoxin is the active principle of *cocculus indicus*, commonly called "fish berries," being used for poisoning fish until they become helpless and cannot avoid capture. Picrotoxin has been tried as a remedy for various disorders, but in only one condition is its usefulness undisputed. For controlling colliquative perspirations it is very efficient, taken by the mouth three times a day in doses of 1/100 of a grain (0.0006 Gm.). It is slower than atropine to take effect. The peculiar dry, sticky sensation caused in the pharynx by atropine is not experienced from picrotoxin. When

once it has secured control of the sudoriferous glands the effect continues for from ten days to two weeks.

Picrotoxin is a complete physiological antagonist to chloral, and in cases of poisoning from one the other should be used. It may, in such emergencies, be given hypodermatically in doses of 1/100 of a grain.

Poisoning by this drug causes a train of symptoms remarkably like those of epileptic convulsions. The spasms are clonic, like those of chorea, instead of tonic like those from strychnine.

Its toxic character is the cause of the rarity with which it is prescribed, the desired effects being ordinarily attainable through the use of less hazardous therapeutic agents.

Annoying local perspiration, such as sometimes keep the feet damp and malodorous, may generally be corrected by free use of the following dusting powder:

Talc. Pulv.3i
Aluminis Pulv.3i
Acidi Salicylicigrn. v

M.—Dust lightly the offending surface night and morning. For sweaty feet, dust interior of stockings and shoes every morning and wash clean at night.—Southern Med. Jour., Aug., 1913.

A CASE OF CALOMEL POISONING

H. Spindler reports a peculiar case of poisoning by calomel in a child 2½ years of age who while suffering from a mild attack of grippe was given by mistake a 5-grain cachet of calomel instead of 3 grains of antipyrin. No untoward manifestation was noted, and the mistake made was not realized until five hours later, when, immediately after the child had been given to drink ¼ of a glassful of Vichy water, she was seized with convulsions, the head being extended, the eyes turned up, and the arms stretched out on the bed with the fists clenched and executing clonic movements. The spasms ceased after four or five minutes, and the breathing, previously jerky, simultaneously stopped. The face became violet, foam appeared on the lips, the head sank to the side, and the extremities became limp. The pulse could not be felt. Sylvester's method and rubbing with vinegar resulted in a return of the circulation and respiration within five minutes, but consciousness was not regained and the eyes remained fixed for an hour after. A large glycerinated enema brought about abundant evacuation of formed yellow feces and a diminution of the abdominal distention previously present. Later, vomiting of

glairy material took place, and two copious evacuations of greenish-yellow, extremely offensive material occurred. On the succeeding two days, fever, slight cough, and evanescent disseminated râles were noted. The treatment consisted of antipyrin and quinine, tincture of iodine and cotton wrapping externally, and later syrup of cinchona. Rapid recovery followed.

This child had never had convulsions before; nor did she have any in the two years after the calomel and Vichy adventure. The disturbance seems to have been caused through an immediate reaction taking place between the sodium alkali in the Vichy water and the calomel, the latter having been taken five hours before and become more or less altered during its sojourn in the digestive tract.—*Press médicale per Monthly Cyclopedia*, July, 1913.

TREATMENT IN DYSPEPSIA

W. H. Wilcox points out that in the treatment of chronic gastritis, careful attention should be paid to the condition of the mouth and teeth. Rest in bed for about a fortnight is advisable if the symptoms are severe, and during this period it is well to carry out gastric lavage daily. Five ounces of citrated or peptonized milk may be given every two hours for the first three days. Later junket, lightly boiled or poached eggs, clear soups or jellies may be given in addition. The diet must also be carefully regulated after the patient gets up. Alcohol is to be avoided and smoking prohibited.

The author recommends the following prescription:

Liq. Strychninæ	℥ijj
Acidi Hydrochlorici Dil.	℥xiv
Tinct. Aurantii	f. 3ss
Glyceritæ Pepsinæ	f. 3j
Spt. Chloroformi	℥x
Aquæ	f. 3j

In hyperacidity, rest in bed is advisable. An easily digestible diet should be prescribed and citrated milk or milk containing one dram of sodium bicarbonate to the pint should be freely given. The following mixture should be given one hour after meals:

Bismuthi Carbonatis	grn. x
Magnesii Carbonatis	grn. x
Sodii Bicarbonatis	grn. xl
Aquæ Chloroformi	ad 3j

In some cases the taking of olive oil, a tablespoonful before meals, is of value. The patient should avoid spiced foods, condiments of all kinds, also soups and meat extracts.

Chronic atonic dilatation of the stomach is best treated by rest in bed for a few days; the stomach may be thoroughly washed out and emptied at the commencement, and then the patient fed with citrated milk to which beaten-up eggs are added. An ounce of liquid may be given every hour for the first twenty-four hours, and the quantity of liquid only gradually increased. When the stomach has contracted down, light, easily digestible solids may be given; but big meals must always be avoided. It is well to avoid taking liquids with the meals; these may be taken either an hour before meals or between meals. Abdominal massage is of value, and the following nerve tonic may be given:

Liq. Strychninæ	℥iv
Tinct. Cardamomi Comp.	f. 3ss
Acidi Hydrochlorici Dil.	℥x
Aquæ Chloroformi	ad f. 3j

—*Med Press and Circular*, July 17, 1913.

TREATMENT OF GRANULATING WOUNDS

H. Bergeat writes that proud flesh can be avoided and rapid cicatrization be obtained if clean, granulating wounds are treated daily with a current of dry, warm air. The granulations are said to flatten, the discharge is rapidly checked, and the epithelium soon spreads from the sides of the wound and covers the raw surface. He is of the opinion that no drugs or dressings should cover the raw surface, but advises the application of a sterile piece of felt with a window the size of the wound. In this way, large open surfaces were cicatrized more rapidly than when treated with silver nitrate.—*Muench. med. Woch.*, June 24, 1913.

SKIN DISORDERS OF CHILDHOOD

The skin disorders of childhood according to A. Schalek, are so strikingly different from those of adults as to deserve more consideration than has been given them. In their acute types they are more frequent than those of adults owing to the tenderness and lack of resistance and the greater lability to injurious external agencies of the child's skin. Even among intelligent people, wrong conceptions exist in regard to this matter, and harmful extremes are commonly seen. Many eruptions are directly due to dirt, but too frequent washing removes the natural lubrication and gives the oil-producing glands less chance to do their duty. The matter of soaps is quite important in this connection, only the purest and mildest should be used on children. At times the infantile skin does not tolerate

water and soap at all, and trying to scrub off scales and crusts leads to a still more severe and apparently incurable condition. The public school is a great factor in the distribution of skin disease, hence the importance of the obligatory inspection of schools, and the examining physician should have more than a smattering knowledge of dermatology. The instability of metabolism and elimination in children are frequently contributing factors. Whether we believe skin eruptions to be local or not, the regulation of the gastro-intestinal functions is most important in treatment. No general rules can be given, for individual treatment is required. The feeding may be insufficient, excessive or irregular, the condition of the mother's milk must be examined, a frequently neglected point in breast feeding, and the diet of older children also needs careful supervision, especially when there is disease of the skin. The disturbances of the nervous system have more to do with causing skin disease, than is generally appreciated. Rest and sleep are essential in acute conditions, and patients frequently recover under the same treatment in a hospital that had failed at home because of the handling and petting they endured. The classification and nomenclature of children's diseases, like that of adults, is unsatisfactory, and besides the etiology certain other factors should be considered. Many skin affections of childhood appear at certain periods, either exclusively or by preference, and no satisfactory explanation has been given. The same diseases may appear in very different form in children from that of adults, on account of the higher vascular irritability and lesser vitality of the skin. One who has not especially studied them may be puzzled in diagnosis. The rule observed in adults, to depend for the diagnosis on some characteristic primary lesion, does not always hold good with children. Any causative or aggravating complication must be attended to. This is the one general rule. It is better to do too little in the way of internal medication than too much. The few drugs that seem to have direct action on the skin in adults, such as arsenic, iodides, etc., must be used with great caution in children, and antipyretics and opiates should be avoided as much as possible. An occasional purge with calomel, some iron tonic and possibly a diuretic is usually all that is needed. Another general rule is to be conservative rather than aggressive in the management of the local treatment. The natural tendency of the skin is to get well, and its protection is of the utmost importance. This means avoidance of irritation of every kind,

a due amount of restriction of any strong local stimulation and the number of applications. The efficiency of treatment is not so much dependent on the knowledge of many remedies, as on skill to recognize indications, and the proper method of meeting them.—*Jour. A. M. A.*, July 19, 1913.

INTRAVENOUS INFUSION BY THE DROP METHOD

Excellent results have been obtained by M. Friedmann by intravenous infusions given by the drop method. A canula is inserted into a vein at the bend of the elbow and is fed from a reservoir attached over the bed. A special clamp regulates the rapidity of the flow so that 50 to 200 drops per minute can be infused. The solutions employed were saline with or without digalen or epinephrin. The method is serviceable in exhausting diarrheas, cholera, ileus, carcinoma of the stomach and all infectious diseases accompanied by collapse. The blood-pressure will not rise so suddenly as with the rapid infusions formerly practised and the heart and arteries remain under the influence of the drugs more steadily so that the body has opportunity to overcome the collapse. The entire duration of the infusion was 5 to 23 hours and the amount of fluid infused 3 to 5 litres. The heart is never strained and the flow of urine is increased to a remarkable degree. Even patients with renal disease tolerate the amount of salt introduced in this way. Other drugs can also be employed in this way.—*Muench. med. Woch.*, May 13, 1913.

STRONTIUM BROMIDE IN LARGE DOSES IN THE TREATMENT OF EPILEPSY

M. R. Callender writes that he has found that strontium bromide given in large doses more effectively controls the attacks of epilepsy than the usual bromides and that its administration is more frequently followed by a cure. To effect this result, he states that the treatment must be persisted in over an extended period of time, in many cases 10 to 12 months' treatment is necessary, and in a few cases even a few months longer.

Excluding those cases which are of old standing and in which the will power and brain seem impaired, and excluding those due to reflex causes, he finds all other cases susceptible to the treatment. He gives the strontium bromides in doses as high as one dram, three times daily. The cases which most readily yield a good result are the young adults. Attacks during the time the patient is under treatment are rare. The

author finds that though the large doses are well borne by the stomach they cause a great deal of mental depression, but the patient, encouraged by the prospect of recovery, and suffering from the recollection of the attacks, readily bears the inconvenience. Acne seems to be much rarer than after the administration of the other bromides.—Lancet, June 15, 1912.

TREATMENT OF CHOLERA INFANTUM

N. D. V. Brecht, of Washington, D. C., writes that the therapeutic indications in the treatment of cholera infantum are to combat the bacteria, to rest the gastrointestinal tract, to relieve anhydremia, to stimulate and prevent collapse, and to aid convalescence. The rational procedure is, if possible, to identify the invading organisms and to administer appropriate vaccines. Bacterial growth may be inhibited and fermentation limited by the use of intestinal antiseptics administered either by mouth or by rectal irrigation. Salol, bismuth salicylate, aromatic sulphuric acid, phenol, beta naphthol bismuth, phenol sulphocarbolate, silver nitrate, quinine sulphate or bisulphate, calomel are all useful drugs of this class. As a routine measure one grain of calomel should be administered three times during the first day of treatment. For securing rest for the gastrointestinal canal, the author recommends withholding of food and modifying the diet, checking the diarrhea and the relieving and prevention of emesis.

When symptoms of gastroenteritis appear, milk should be discontinued. For the first 24 hours the baby should be sustained by the use of a solution of egg albumen, ice, peppermint tea, black tea and cool water. After the first day a selection may be made from such preparations as barley gruel, oatmeal gruel, albumen water, lime water, toast water, mutton broth, cornstarch pap, acorn cocoa, beef juice, etc. For checking the diarrhea the following prescriptions are useful:

Bismuthi Subcarbonatis 5j
Aque Cinnamomi f. 3ij
M. Sig.: A teaspoonful every one or two hours.

Argenti Nitratis grn. ij
Aque Destillatæ f. 3ij
M. Sig.: A teaspoonful every two hours.
(To be dispensed in a dark bottle. Shake.)

Resorcini grn. ij
Aque Cinnamomi f. 3ij
M. Sig.: A teaspoonful every two hours.

Bismuthi Subnitratis 5ij-iv
Salolis grn. xxiv
Misturæ Cretæ f. 3iij
M. Sig.: A teaspoonful every two hours.

For excessive vomiting, gastric lavage is per se, the best single remedial measure. In some cases the following may be administered:

Tincturæ Iodi gtt. x
Aque Menthæ Viridis q. s. ad f. 3j
M. Sig.: Fifteen drops every hour.

When the course of the disease is rapid and prostration ensues, hypodermoclysis or enteroclysis is indicated. The Cantani normal salt solution should be employed; epinephrin chloride solution may be added with advantage.

When stimulation is required, caffeine, strychnine and camphor are useful to supplement enteroclysis and hypodermoclysis. Hot baths and the use of hot water bottles are often of great value, if the peripheral circulation is feeble or collapse threatens.

During convalescence milk feeding must be resumed gradually. When a tendency to loose stools persists astringents must be continued. The judicious use of tonics and hematinics materially hastens complete restoration to health.—N. Y. Med. Jour., Sept. 6, 1913.

TREATMENT OF IRITIS

That primary iritis may result from any septic process affecting the body is the contention of Ormond. Thus, there have been found associated with uveal inflammations all the common varieties of pyogenic organisms or their toxins. That the organisms of syphilis, gonorrhea and tuberculosis may be a cause has often been demonstrated. Rheumatism, pyorrhea alveolaris, dyspepsia, and uric acid diathesis are somewhat less certain. Unless infection takes place traumatism per se does not cause inflammatory action. The author points out also that iritis may be associated with subacute rheumatoid arthritis, though probably not with acute rheumatism, except possibly as a coincidence. Cases of gonorrheal iritis may arise as late as 20 or 30 years after the primary infection.

Regarding treatment the author points out that the pupil is to be widely dilated and careful search made for the cause. The bowels are to be kept open by calomel and salines and the patient kept in a warm atmosphere. Stimulants and meat are to be avoided. Locally, he finds the following to be very effective:

Atropinæ Sulphatis
Cocainæ Hydrochloridi āā grn. iv
Dionini grn. xii
Aque ad f. 3j

TREATMENT OF SEVERE ANEMIAS

According to A. Weber, it is not necessary to transfuse large amounts of blood in the treatment of pernicious anemia since the repeated injection of small amounts will accomplish the same purpose and will usually stimulate the bone marrow sufficiently to cause a pronounced improvement. The author generally employs 5 Cc. of defibrinated blood. In the majority of cases, no after-effects were noted, but in one there was high fever for four days, with consolidation of the lung. Such accidents can be avoided by placing the defibrinated blood into the ice chest for 6 to 24 hours before injecting. The technique is as follows: 20 to 30 Cc. are withdrawn from the donor and allowed to flow into a sterile Erlenmeyer flask. The blood is then defibrinated by beating for 5 minutes with a sterile glass rod and then filtered through sterile gauze into a second flask. The following day, the blood is warmed and then injected intravenously in doses of 5 Cc. In all cases, the patients should receive arsenic subcutaneously and all the other measures employed for this disease.—Muench. med. Woch., June 17, 1913.

CYANIDE OF GOLD AND POTASSIUM IN PULMONARY TUBERCULOSIS

Five cases of pulmonary tuberculosis, free from fever and other complications and with doubtful prognosis have been treated by Junker with intravenous injections of potassium and gold cyanide by the method recommended recently for lupus. The initial dose was 1 Cc. of a 1 per cent solution, thoroughly diluted with saline solution. In all cases, there was a rise of temperature, accompanied by headache which was repeated with every subsequent injection. In some instances, there was a decided focal reaction like with tuberculin; that is, the cough and expectoration became more pronounced and more rales could be detected over the lung. A therapeutic effect is undoubted, yet it is generally better to employ much smaller doses, which give rise to no temperature elevation. The author now advises an initial dose of 1 milligram, to be increased to 3 or 5 milligrams if there is no reaction. The maximum dose is 1 to 2 decigrams and the injection should not be repeated oftener than every three or four days. It is impossible to say at present whether the favorable effect is due to a capillary paresis induced by the gold or whether the gold has a direct neutralizing effect toward the virus.—Muench. med. Woch., June 24, 1913.

CAMPHORATED OIL IN THE TREATMENT OF PERITONITIS

Vignard and Around speak highly of the use of camphorated oil in the treatment of cases of acute diffuse peritonitis. They introduced in the peritoneal cavity 200 to 300 Cc. of a 1 per cent camphorated oil. This procedure very effectively inhibits toxic absorption and also lessens the formation of adhesions. They are convinced that the oil possesses the latter property to a very considerable degree as was demonstrated in a number of cases in which it was used and in which later there was a reoperation or autopsy. The camphor seems also to exert a tonic action on the heart and has also considerable antiseptic value. A marked improvement in the patient's circulation was also noticed soon after the injection into the peritoneal cavity and there was also a rapid fall in temperature. The authors point out, however, that the oil must be absolutely pure. To each kilo of oil 300 grams of 95 per cent alcohol are added. The mixture is then shaken violently and allowed to stand for 24 hours, after which the oil is decanted. This process is repeated three times. The oil is then sterilized and the camphor added.—Rev. de Chir. XXIII, 773.

INDICATIONS FOR NITRAGLYCERIN

Edward E. Cornwall, of Brooklyn, discusses when and how to use nitroglycerin. He emphasizes the following points: The general indications for the use of nitroglycerin are (1) to relieve symptoms of localized arteriosclerosis or arterial spasm in vitally important regions of the body, and, when there is pain due to contracted or diseased arteries, in other regions; (2) to reduce general high blood-pressure in selected cases, if its continuance threatens accidents to the cardiovascular apparatus; and (3) to clear the diagnosis.

The chief contra-indications to the use of nitroglycerin are (1) low or relatively low blood-pressure; (2) advanced chronic nephritis with very high blood-pressure and toxemic conditions producing high blood-pressure, as a rule; and (3) the presence of an idiosyncrasy in regard to its action. Nitroglycerin should never be used for the primary purpose of a heart stimulant. Nitroglycerin given under the tongue produces almost as prompt an effect as when injected under the skin. If given too long or in too large doses, it can produce injurious effects, which, however, usually pass away, at least apparently, when it is discontinued.—Jour. A. M. A., July 12, 1913.

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SEPTEMBER, 1913

EDITOR'S NOTES

On the Advisability of Combining Digitalis With Diuretin

As a rule, the general practitioner resorts to digitalis medication only when there are evidences of pronounced decompensation on the part of the heart, though in most instances it would be better if the drug were prescribed with the appearance of the first signs of circulatory embarrassment. Such early symptoms are commonly seen in bronchitis, pneumonia, emphysema, etc. The favorable effect of digitalis upon the circulation is soon evident in an improvement in the general condition and in most cases the breathing will be rendered less difficult.

If the action of the glucosides of digitalis be analyzed, two effects may be noted: Firstly, there will be a more effective diastole so that the chambers of the heart are better filled and there will be a slowing of the heart action; secondly, the systole will be more forcible so that the heart contracts more strongly and the blood will be forced out more thoroughly. Another effect of digitalis is the regulation of the heart action where the pulse was formerly irregular. Digitalis also shows a specific effect upon the innervation of the vascular musculature. Thus, large doses given to animals will give rise to a contraction of the vessels. It is for this reason that preparations of digitalis were formerly never prescribed in thickening of the coronary arteries. Digitalis in therapeutic doses will,

however, dilate some vessels, like those of the kidneys. It is also likely that therapeutic doses will also improve the circulation in the coronary arteries despite any possible contraction of the vessels since the general circulation is materially improved.

Digitalis is peculiar in that the opposite of what is expected is likely to happen if the dose is increased. Thus, toxic doses of the drug will give rise to an increased heart action with irregularity of the pulse. For the heart itself, this applies only to exceptionally large doses while the vessels seem to be more sensitive to this opposite effect. Thus, a relatively small dose of the drug may give rise to an active flow of urine while a somewhat larger dose, which may still show the desired heart effect will lead to an active contraction of the renal vessels and a cessation of the flow of the urine. The nerves contained in the vessels therefore react more readily to small doses of the drug.

Diuretin is a remedy which admirably corrects any undesired effect of digitalis. In itself, it is a cardiac tonic in that it regulates the contractions of the heart and increases the work done by this organ. This effect is obtained by an increase in the force of the systole. The action of the drug upon the cardiac musculature is, however, of secondary importance to its specific influence upon the vessels. Diuretin dilates both the coronary arteries and the peripheral vessels. Unlike with digitalis, this is also apparent with larger doses. Owing to this specific effect, it is invaluable in the treatment of arteriosclerosis with its many manifestations such as headache, stenocardia, intermittent claudication and all vascular spasms of arteriosclerotic basis (such as certain forms of otalgia which, according to the investigations of Stein are frequently to be ascribed to arteriosclerosis). A special indication for the use of the drug is arteriosclerosis of the coronary arteries. The circulation in these vessels will be materially improved with the result that the heart muscle will be better nourished.

From the above considerations it follows that the treatment of a disturbed circulation will be more effective if the glucosides of digitalis are combined with diuretin. Thus, in affections of the heart itself, the main work will be done by the digitalis, but the diuretin, by its action upon the coronary arteries will improve the nutrition of the heart muscle and by its action upon the musculature of the vessels will diminish the peripheral resistance. In arteriosclerosis, the effect of diuretin is in general of

greater importance, but it prepares the system for a better effect of the digitalis since the circulation in the coronary vessels and the vessels of the brain will be improved. In nephritis, small doses of digitalis are indicated when it is desired to increase the flow of urine. Diuretin will here prevent a cumulative effect of digitalis with its consequent contraction of the renal vessels. The combined action of the two drugs is also of the greatest importance in the treatment of bronchitis. Where all the customary drugs are ineffective this combination will frequently accomplish the desired result. The action of the digitalis is intensified by the diuretin which will also exhibit a spasmolytic effect upon the bronchial musculature.

The Action of Hydrogen Peroxide

According to an article published by Walbum, hydrogen peroxide is supposed to inhibit the formation of enzymes from mucous membranes. The experiments were conducted chiefly with the katalase and diastase of saliva and the amounts present normally and after treatment with peroxide were carefully determined by the author. In a more recent contribution, A. Marcuse doubts this action of peroxide and shows that the mere washing out of the mouth with plain water will reduce the amount of katalase present. It seems probable that the water merely washes away what has accumulated and that the glands are not able to produce a like amount within a brief period. The effect of peroxide on enzymes is therefore not proven.—Berl. klin. Woch., 1911, No. 32.

Subcutaneous Injections of Hexamethylenamine in Typhoid

H. Triboulet and F. Lévy write that with typhoid fever in children over six years of age they administered an initial injection of 0.4 Gm. of hexamethylenamine morning and evening. This dose was gradually increased until 4 to 6 Gm. were given daily in two doses. The preparation was used in a 40 per cent. solution and was sterilized by either a 20-minute exposure to a temperature of 60° C. or by simple solution in sterile water.

The authors studied three cases with special reference to the urinary changes produced. Bathing was also used in these cases. In two cases vesical epithelium, pseudoalbumin and a trace of serum albumin was detected in the urine. Erythrocytes and globulin were later eliminated. The authors believe that the urinary changes were due to vesical irritation as

the kidneys remained unaffected. The hypodermic injections were more effective than the usual oral administration. The adynamia disappeared, the diarrhea was reduced, the urine rendered more dilute and the tongue moist. In septic cases, especially with elimination of bacilli in the bile and with infectious enteritis it is probable that large doses of the drug could be used with benefit.—Presse Médicale, Feb. 22, 1913.

Effect of Digitalis in Health

A number of interesting experiments conducted by E. Bernoulli show conclusively that digitalis has absolutely no effect upon a healthy heart that has been fatigued by heavy work. The reaction of the heart toward work and the duration of the period required for a complete return to the normal are in no wise influenced. Digitalis is, therefore, no real heart tonic in the strict sense of the word. Very little can be expected from the administration of the drug as prophylactic as in surgery where a post-operative pneumonia is to be avoided. In most cases, where there are the first indications of an insufficiency, the drug should be used, but an improvement is only to be expected where the treatment includes absolute rest in bed. The author believes that digitalis will not make an insufficient heart more resistant and there will be little or no recuperation if the same amount of work that led to decompensation is continued.—Muench. med. Woch., May 6, 1913.

Treatment of Raynaud's Disease

In one typical case of Raynaud's disease, R. Schreiber has obtained excellent results by incising the tips of the affected fingers and then applying suction. The cyanosis and anesthesia disappeared almost immediately so that the patient could again take up her vocation. As compared with the untreated hand, the fingers were red and of healthy appearance and all the anesthesia had disappeared. Unfortunately, this remarkable improvement lasted only three or four weeks when the patient returned to the hospital if possible worse than before. It was not deemed wise to operate her again so treatment with hot air was begun, with the most gratifying results. It is usually not advisable to employ the customary baking ovens since these patients are particularly susceptible to severe burns. The air, which need not be any hotter than 50° C., can be blown upon the fingers and other affected parts by means of a specially constructed spray.—Muench. med. Woch., June 10, 1913.

Prescriptions

Pertussis:

Blair recommends the following for inhalation in pertussis:

Mentholis
Thymolisāā grn. v
Olei Eucalyptif. 3ij
Olei Pini Sylvestris.....f. 3iij

M. Sig.: A teaspoonful of this mixture is to be placed on boiling water and inhaled under a hood, or a few drops may be used in a small inhaler.

Gastric Ulcer:

Alum. et Pot. Sulphatis.....3j
Acidi Tannici3ij
Div. in pulv. No. xv.

Sig.: One or two powders every 15 minutes until bleeding ceases. Little water should be taken after administering the powders.

Black Eye:

Ichthyolisf. 3iv
Olei Myrciæmxx
Tinct. Capsicimxx

M. Sig.: Apply carefully on bruised spots around the eye. Caution! Keep out of the eye.

Acne:

The following lotion is to be applied at night:

Sulphuris Præcip.3j-jss
Talcii Purificati Pulv.....3ss
Glycerini3ij
Tinct. Quillajæ3ijss
Aquæ Rosæ3iv

M. Sig.: Shake before using.

The face should be washed with soap and water each morning and a paste of zinc or bismuth then applied. Where no irritation of the skin appears, the following powder, suitable especially for female patients, may be applied:

Magnesii Carbonatis3jss
Sulphuris Præcip.grn. xv
Tinct. Carminiq. s.

M. ft. pulv.

—Gaucher.

Prolapsed Internal Hemorrhoids:

Extracti Opii3ss
Cocainæ Hydrochloridigrn. x
Mentholisgrn. xx
Ung. Zinci Oxidi.....3j

M. Sig.: Apply locally.

—Kemp.

Asthma in Children:

Comby recommends the following formula for the administration of arsenic to asthmatic children:

Sodii Arsenatisgrn. 1/4
Potassii Bromidigrn. viijss
Syrupi Aurantii Florum.....f. 3j
Aquæ Destillatæf. 3ij

M. Sig.: Three teaspoonfuls a day.

—Monde Médicale.

Chronic Bronchitis:

Creosoti Carbonatis
Acaciæāā 3ss
Syrupif. 3iij
Aquæ Cinnamomif. 3iv

M. Sig.: Shake. One dessertspoonful every two hours.

Influenza:

Immediately after purgation, either of the two following prescriptions is of value to stimulate the emunctories and reduce the temperature:

Tinct. Aconitif. 3j
Spiritus Aetheris Nitrosi.....
Syrupi Limonisāā f. 5x
Lig. Ammonii Acetatis.....ad f. 3v

M. Sig.: One dessertspoonful in a wineglass of water as required.

Potassii Citratis3v
Spiritus Aetheris Nitrosi.....f. 3ijss
Aquæ Destillatæad f. 3v

M. Sig.: One dessertspoonful in one-half glass of water three times a day.

Senile Pruritus:

Acidi Sulphurici Dil.....mxxv
Syrupi Rubi Idæi.....f. 3j
Aquæ Destillatæad 3vj

Sig.: Tablespoonful every two hours.

—Bäumer.

Pityriasis Versicolor:

Hydrarg. Bichloridigrn. viij
Saponis Viridis3xij
Olei Lavandulæmxxx
Tinct. Lavandulæf. 3ij

M. Sig.: To be rubbed on affected part, and a full bath to be taken three days afterward.

Ptyalism:

Formaldehydif. 3j
Thymolisgrn. x
Tinct. Benzoini Comp.....f. 3ij
Alcoholisf. 3iij

M. Sig.: Teaspoonful in a wineglassful of water as a mouth wash.

Urticaria:

Unna's ichthyol varnish according to the following formula may be used:

Amyli
Ichthyolisāā 3ij
Albuminis Ovi Liquidi.....grn. iij-ivss
Aquæad 5v

Rubeola:

The following ointment applied three or four times a day will be found effective to relieve itching in measles:

Ichthyolisf. 3j
Acidi Carboliccigrn. iij
Lanum3iij
Ung. Aquæ Rosæ.....3j

M. f. ung.

Intestinal Tuberculosis:

Ichthoformigrn. xxiv
Tannigeni3j
Guaiaicolis Carbonatis3j
Bismuthi Subnitratris3ij

M. et pone in cachetas No. x ij.

Sig.: One cachet every two to four hours.

—Thornton.

Pyrosis:

Creosotigtt. xxiv
Bismuthi Subcarbonatis3iv
Mucil. Acaciæf. 3ij
Aquæ Cinnamomiad 3iij

M. F. emulsum.

Sig.: Teaspoonful in water one hour after meals.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Experimental Reversing of the Circulation.—

The idea underlying Wieting-Pachas's operation for arterio-sclerotic gangrene is that of a reversal of the circulation. In this operation an anastomosis between the femoral artery and vein is established. M. Rothmann ("Berl. klin. Woch.," May 20, 1912) has experimented on animals to determine how far such a reversal is really possible. He gives the details of the methods which he employed. When using the portal circulation in the frog he found that a reversal is possible. The amount of fluid which can pass through the veins, capillaries, and out of the arteries is from 15 to 50 per cent of the amount injected into the recipient vein. The organs supplied in this circulation become edematous, retaining much of the injected fluid. It must be mentioned that the portal vein in the frog possesses no valves. When the experiment was applied to the mesenteric vessels, where the veins are provided with valves, not a drop of fluid passed out of the arteries, even when 140 C.c. water pressure was applied. A further experiment was carried out: The carotids and jugulars of living rabbits were freed and at first transfused with defibrinated blood diluted with Ringer's solution. The fluid passing through the arteries escaped by the veins. Then the current was reversed, and lastly the fluid was run into one jugular vein only. In no case did a drop escape through the carotid arteries. He therefore concludes that reversal of circulation is only possible where the veins have no valves, and is then only partial.—Brit. Med. Jour.

Preinsane Conditions.—R. Moore, of Los Angeles, says that in his examination of slightly defective children it has been hard to give definite opinions as to their future, or to properly classify them according to definite types. He can add but little from his recent studies to the three loosely constructed types tentatively offered two years ago; and admitting their imperfections, restates them as follows: "1. *The Neurasthenic*.—The neurasthenic adult is the logical result of a neurasthenic child or a normal child plus exhausting illness. Natural juvenile neurasthenia is clear-cut. On the physical side its symptoms are a general droopiness, poor standing balance, diminished expression of face, fatigue and fulness or puffiness under the eyes. When the arms are extended, one will be held lower than the other and the thumbs will droop away from the rest of the poorly extended hands. Fingers twitch with irregular and slow motion, entirely unlike chorea, when the hands and arms are extended. An effort to stand erect causes an accentuated forward curve of the spine, with relaxed and protruding abdomen. On the nerve side there is evidence of marked inability to accomplish, which is due to mental, not to physical fatigue; an appearance of mental apathy which is not real, but is due to a queer combination of alertness with actual mental fatigue; a full appreciation of events and surroundings with a studied minimum of reactions to them and abnormal sensibility to external impressions. *The Pre-emotional Type*.—This type shades into and is often combined with the neurasthenic type. Children of the latter type, however, are usually well formed physically, while the pre-emotionals

may show various physical stigmata frequently found with congenital mental disturbances. The general distinguishing features between the emotional and the neurasthenic types are to be found in the study of the stimuli to which each type responds most readily. The young neurasthenic is seldom introspective. His stimuli are largely external. The future sufferer from mania, melancholia, hysteria, etc., responds to internal rather than external stimuli. Fear, ambition, love, hate, sorrow—all provide internal causes for outward reactions, which at times become so prominent as to be labeled "unnatural." His existence is sthenic, not asthenic. He has a large range of interests and he keeps them all going. He is versatile and capable, intense in what he does and thinks, and vigorous in joy and sorrow. *The Predements*.—These are the mental shut-ins. They are usually physically well built and admirable while mentally "un-understood." Apparently happy and care-free, they often carry a hazy and terrifying knowledge of their own apartness from their associates. They are also characterized by a power to carry out their natural aptitudes with ordinary ability or even with brilliancy, thereby covering up defects in reasoning power which may be immense. They are not easily fatigued, not emotional in the usual way, seized by fundamental emotions and held by them because of inability to react to further stimuli; unable to correct ideas by reason and observation, unable either to understand or explain themselves because of this flow of intellect which makes impossible the exercise of sound judgment; consciously, uncomprehendingly handicapped.—Jour. A. M. A., Aug. 30, 1913.

Alcohol as a Stimulant.—The alcohol question has been in the forefront of medical discussion for many years, with the general result that alcohol has ceased to occupy a place of usefulness in our armamentarium against disease. Like other entrenched customs, it has been exceedingly difficult to eliminate alcohol from medical practice. It is still no doubt used very widely by physicians in good standing, and no doubt will continue to be for many years to come. That it has a certain place of usefulness no one will be disposed to deny, but it is increasingly desirable not to deceive ourselves by the supposition that it has intrinsic virtues in combating disease. Were a census of the various large hospitals made, it would undoubtedly be shown, as it has been at the Massachusetts General Hospital, that the use of alcohol as a stimulant or for other purposes, taken internally, has steadily diminished during the last few years. This has come about partly through clinical experience and largely through experimental evidence. Leading clinicians of the later school are practically united in the opinion that so far as the treatment of disease is concerned alcohol no longer occupies a place of usefulness except naturally for certain external conditions. Professor Ewald of Berlin has recently taken this position in making the statement that the value of alcohol in infectious diseases has not been proved, and that it actually diminishes natural resistance. It is said that in Ewald's clinic alcohol is ordered only under two conditions, either in severe collapse or as a means of euthanasia. It is probable that the next fifty years will see the gradual increase of this reaction, already firmly rooted in the practice of the most progressive clinicians, against the indiscriminate use of alcohol.—Boston Med. and Surg. Jour.

Book Notes

CONTRIBUTIONS TO PRACTICAL MEDICINE. By Sir James Sawyer. Fifth edition, with many revisions and additions. The admirers of Sir James Sawyer (and they are many) have in this work an opportunity to possess themselves of a collection of his better known writings and lectures. Some of the individual essays, notably those on insomnia and coprostasis, it has been our pleasure to comment on in these columns before. The wide experience of the author and the sound judgment and good sense that he invariably displays justifies the sterling stamp of value that this work—as, indeed, also all his other works—merits. The volume includes chapters on insomnia, habitual constipation, diagnosis in pulmonary diseases, floating kidney, eczema, chorea, tuberculosis, asthma, diet in diabetes, and the three Lumleian lectures on diseases of the heart. (Cornish Bros., Birmingham, 1912. 412 pages. Price, 5 shillings net.)

PROGRESSIVE MEDICINE, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences, edited by H. A. Hare, M.D., assisted by L. F. Appleman, M.D. Vol. II, June, 1913.—The volume opens with a long illustrated chapter on "Treatment of Hernia" by W. B. Coley. Among the more interesting chapters in the article "Surgery of the Abdomen" by J. C. A. Gersta are "Laparotomy in Paravertebral Anesthesia," "Roentgen Diagnosis of Stomach Diseases," "Gastric Ulcer," "Diagnosis and Treatment of Appendicitis," "Surgical Treatment of Constipation" and "Prolapse of the Rectum." Interesting chapters are also contributed on "Gynecology," by J. G. Clark; "Diseases of the Blood," "Diathetic and Metabolic Diseases," "Diseases of the Thyroid Gland, Nutrition and the Lymphatic System," by Alfred Stengel; and on "Ophthalmology," by Edw. Jackson. (Lea & Febiger, Philadelphia and New York, 1913. Price, \$6 per annum.)

BERECHNETE ARZTLICHE KOSTVERORDNUNGEN NEBST VOLLSTÄNDIGEM KOCHBUCH FÜR ZUCKERKRANKE. von Dr. med. Hermann Schall. Those who have to do with dietetics, especially in sanatoria, will find in this book a wealth of information. Almost six hundred courses of five meals a day are laid out with accurate calculations of the caloric, carbohydrate, fat and protein value of each. In addition there is much information regarding dietetics in general, the preparation of foods, recipes, etc., as well as many valuable tables indicating the caloric and other values of the common articles of food. (A. Stuber's Verlag, Würzburg, Germany. Price, M. 5.50. 1913. pp. 320.)

KRANKHEITSENTSTEHUNG UND KRANKHEITSVERHÜTUNG UND GEHEIMNISVOLLE LEBENSÄUSSERUNGEN DES KÖRPERS. Öffentliche im hamburgischen Vorlesungsgebäude in den Wintern 1911 und 1912, gehaltene Vorlesungen von Dr. Hans Much, Oberarzt am Epplerdorfer Krankenhaus. Mit 22 Abbildungen im Text.—An imposing title, but a very readable little book. The work is a collection of seven lectures delivered before an intelligent non-medical audience. It discusses in a practical, accurate, scientific, but not too technical manner the principal phenomena of life, the causes and prevention of disease, immunity, anaphylactic processes. A subject as broad as this is a most difficult one to treat, but the

author has been successful in selecting the important points and in making clear the significance of each. (A. Stuber's Verlag, Würzburg, Germany, 1913. Price, paper, M. 2.50; bound, M. 3.)

WIRKLICHE UND ANGEBLICHE SCHÄDIGUNGEN DURCH SALVARSAN. Bearbeitet von Dr. Artur Schmitt. A comprehensive work on salvarsan. A bibliography of some 1400 entries is appended. (A. Stuber's Verlag, Würzburg, Germany, 1913. Price, M. 4.)

WÜRZBURGER ABHANDLUNGEN AUS DEM GESAMT-GEBIET DER PRAKTISCHEN MEDIZIN. XIII Band. 10 Heft. "Erfahrungen und Betrachtungen aus der Praxis," von Dr. August Heisler. (A. Stuber's Verlag, Würzburg, 1913. Price, M. 85.)

A MENTAL HYGIENE HANDBOOK.—A handbook on Mental Hygiene, for popular use, containing discussions on nearly every phase of mental troubles, their nature, cause and prevention, has just been published by the State Charities Aid Association. The authors of the handbook comprise an unusual group of more than twenty of the most prominent physicians, educators and sociologists in this country—many of them possessing an international reputation.

The handbook is the proceedings of the Mental Hygiene Conference held last winter at City College.

This conference, the first of its kind ever held, was widely reported throughout the country, and even attracted attention in the foreign press. The twenty-nine addresses make up a volume of 224 pages.

Some of the topics treated are: Unsoundness of Mind a National Handicap, Prevention by Popular Education, Social Service in Preventing Mental Breakdowns, Self Management, Day Dreams and Thinking, Alcohol and Insanity, Early Manifestations of Mental Disorder, Syphilis and Insanity.

Among the contributors to the volume are: Dr. Barker, Johns Hopkins University; Dr. Jacobi, President American Medical Association; President Butler, Columbia University; Dr. Jelliffe, Fordham University; Dr. Peterson, Columbia University; Dr. Southard, Director Boston Psychopathic Hospital; Mr. Folks, Secretary State Charities Aid Association; Dr. Meyer, Phipps Psychiatric Clinic; Dr. Mabon, Superintendent Manhattan State Hospital; Dr. Gildersleeve, Barnard College; Dr. Paton, Director of Exhibit of National Committee for Mental Hygiene.

DIÄT UND KÜCHE. Einführung in die angewandte Ernährungs Therapie von Dr. Wilhelm Sternberg, Spezialarzt für Ernährungs Therapie in Berlin.—A scholarly and thoughtful treatise of exceptional literary value. In the first part the author treats in a general way of the broad problems of nutrition and of the part it plays in veterinary and human medicine. The second part is devoted to a consideration of the subjective and objective factors in dietetics and of its relation to the chemistry, physics and physiology of taste. Its clinical, pharmacologic, physiologic and psychologic aspects are also considered. The concluding chapters deal with the therapeutic value of dietetics. (A. Stuber's Verlag, Würzburg. 188 pages. Price, M. 5.)

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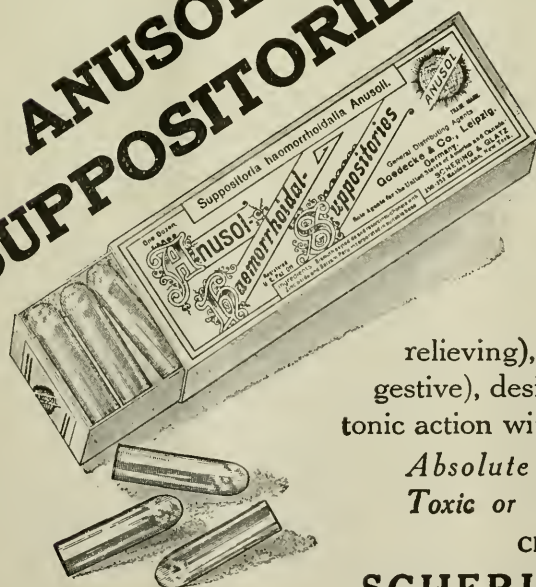
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TOO LATE.—A boy wrote home for a supply of cash. Appended to the letter was the following postscriptum: "I felt so ashamed at having asked you to send me \$10 that I ran to the post-office to get my letter back. Unfortunately it had gone."

THE GERMICIDAL PROPERTIES OF TOBACCO SMOKE—It is not surprising to learn that tobacco smoke is inimical to the activity of micro-organisms, since it contains, amongst many other things, pyridin, which has been shown to be a powerful germicide. Definite experiments have recently been made which show that tobacco smoke rapidly destroys in particular the comma bacillus of cholera. A good many years ago it was reported by the senior medical officer of Greenwich workhouse that the tobacco-smoking inmates enjoyed comparative immunity from epidemics, and tobacco smoking was believed to have had a disinfectant action in cases of cholera and other infectious diseases. Again, during a cholera epidemic at Hamburg, it was reported that not a single workman engaged in the cigar factory in that city was attacked by the disease. Later it was stated that amongst a body of five thousand cigarmakers only eight cases and four deaths from cholera occurred. Subsequent experiments proved that tobacco smoke destroyed the bacilli of Asiatic cholera as well as pneumonia, and there was some evidence also that tobacco smoke was preventive of some forms of nasal catarrh. It is interesting to note that pyridin is official in the French pharmacopœia, and in France it has been employed in the form of inhalation in asthma, emphysema and angina pectoris, and mixed with peppermint in diphtheria. Excessive tobacco smoking, of course, may easily give rise to constitutional effects which diminish the resisting power of the body to disease, in which case it is probable the habit would afford not only no protection but an opening for invasion.—Lancet.

THE ADVERTISING PHILANTHROPIST.—It is a singular perversity of human nature that people who need to be uplifted do not care to have too much said about it.

Incidental to a vice campaign in Philadelphia it has been announced on every hand that the poor and unfortunate who were rescued could be provided for on application to certain people who have made all necessary preparations to carry on rescue work in the most approved style. Strange to say, there are no applicants.

It is also reported that quite a number of missionaries, who make few if any announcements for publication, but who have equipped themselves with somewhat cramped quarters in connection with their work, have been positively overrun with unfortunates who drift into their place and drift out again, securing a place to

sleep and something to eat, but receiving no advice whatever unless they ask for it.

On account of another singular perversity of human nature people who do not offer their good advice unsolicited are very likely to have frequent opportunities to offer counsel where it is very badly needed.

There are occasions where a brass band can be employed with a reasonable degree of propriety, but in rescuing the foolish and unfortunate from the result of their folly and misfortune wind instruments can be appropriately dispensed with.—Monthly Cyclopedia.

NO BABIES EXPECTED.—At the wedding reception the young man remarked: "Wasn't it annoying the way that baby cried during the whole ceremony?" "It was simply dreadful," replied the prim little maid of honor, "and when I get married I'm going to have engraved right in the corner of the invitations: 'No babies expected.'"

GHOSTS AND GAS.—Man, in spite of our boasted progress in knowledge, is still almost as full of superstition as he was when he walked encompassed by evil spirits who threatened him in every act of his life. The investigation of ghost stories is still regarded by many persons of fair understanding as a matter worthy of serious attention, and not a few people who pass for strong minded would find an excuse for not passing a night in a haunted house. Everyone knows the description in the "Professor at the Breakfast Table" of the creakings, and crackings, and sounds of all kinds heard "when you are lying in bed in a lone attic of a dark night." These will often play such a devil's sonata, even on the nerves of the sceptic, that his philosophy will desert him and he will mutter, like the professor's friend, "*Pater noster, qui es in coelis!*" for he is "damp and cold, and sitting bolt upright, and the bed trembling so that the death-watch is frightened and has stopped ticking!" An instructive story is told in our contemporary, "Science," by Dr. Franz Schneider. He was invited to examine a large and handsome house in Boston which was getting a reputation of being haunted. He localized the trouble in the third and fourth stories, which were occupied by the children and servants. Their sleep was disturbed by strange sensations. The servants awoke in the night with a feeling of oppression, "as if someone were tapping on me," or with a "creepy feeling going all over me with a feeling of being paralyzed." Sounds as of someone walking about the house were also heard. These sensations often continued after the sleeper was thoroughly awake, and even after the lights had been turned on. The children complained of people lying on them, and of strange men frightening away sleep from their pillows. They looked pale and sluggish in the morning, and did not respond to the stimulus of cold water. These things, which were often repeated, had extended over a period of about two months during which the family had occupied the house. Former tenants had suffered in the same way, and it was said walking apparitions had been seen. The solution of the problem was prosaically simple. Dr. Schneider found that the large amount of "furnace" gas escaping from a viciously defective hot-air furnace was the source of the ghostly visitations. In consequence the dwellers in the house were bathed in an atmosphere of diluted flue gases. To make matters worse, a small boiler for a steam heating system had been placed within the firebox directly over the fire, the effect being to cool the top of the fire and

so promote incomplete combustion. Flue gases, especially when combustion is incomplete, contain considerable amounts of sulphurous oxide and carbon monoxide. Furnace gas was diffused in the house, and was often so strong that the eyes watered and an appreciable effect was felt in the throat—symptoms at once suggestive of sulphur. For the most serious symptoms the carbon monoxide was responsible. The feelings of oppression and other mental disturbances are typical of the more acute forms of poisoning with this gas, while anemia, malnutrition, loss of psychic powers and diminished vigor are characteristic of a chronic condition. It seems probable that the belief in walking spirits was encouraged by real noises coming from an adjoining house. Any such noises would be likely to be exaggerated in the case of persons startled out of sleep in the night while suffering from the effects of carbon monoxide. The tainted atmosphere was sufficient to cause creepy sensations and delusions of ghosts.—Brit. Med. Jour.

VEIN-TO-VEIN TRANSFUSION possesses over the artery-to-vein operation at least the advantage of sparing the donor a conspicuous scar and the loss of a large artery. With a tourniquet lightly applied to his arm the venous pressure may be made abundant, and the blood flow correspondingly rapid.—Amer. Jour. Surg.

PUBLIC HEALTH AND MATERNITY.—In a communication to the "Virginia Medical Semi-Monthly," Professor C. W. Stiles, of the U. S. Public Health Service, makes the following interesting comments: The average person is perhaps not disinclined to view life and death as a rather personal matter involving primarily the person who lives or who dies. At least, the average person certainly overlooks the point that, in general, to protect the life of a given individual is an act of kindness not only toward that individual and his descendants, but also toward the person to whom the individual saved owes his life originally. Accordingly, in public health work one frequently meets with the attitude that the prevention of disease is a precaution directed primarily toward the benefit of the person protected.

That this feeling is not without a certain amount of foundation, will not be argued here, but attention is invited to a phase of the subject

which seems rarely to occur either to public health workers or to persons for whom they try to procure protection, and the point is submitted that a lack of proper public health protection is of greater injustice to the mothers of the country than to any one other class of people, because (1) they suffer individually from unnecessary disease they contract; (2) their efforts to keep up the population are inhibited to a greater or less degree by the unnecessary sickness and death of their offspring; and (3) it is chiefly upon the mothers that the care of sickness falls.

It has been estimated that about 620,000 persons in this country perish per year from preventable or postponable causes. This means that the maternity efforts of approximately 620,000 mothers are rendered more or less useless—according to the age at which their offspring die. More in detail, this estimate means for the mothers approximately the following:

First.—These 620,000 mothers of the 620,000 annual American human sacrifices have needlessly, or in part needlessly, passed through 620,000 times 9 months=5,580,000 months=465,000 years of pregnancy. Think of this annual inconvenience and suffering on the part of American mothers, due directly and specifically to the fact that the average American father has so little interest in seeing that we have properly enforced public health laws.

Second.—This means that 620,000 mothers have needlessly, or in part needlessly, faced the dangers and passed through the agonies of child birth. This paragraph is respectfully referred to the Carnegie Hero Board.

Third.—This means that these mothers have spent, following child birth, about 620,000 times 10 days=6,200,000 days=16,986 years in bed, more or less needlessly, because their offspring died sooner or later from preventable or postponable causes. Respectfully referred to political economists to estimate the money loss.

Fourth.—Since it takes between 1 and 2 years for a woman fully to recover her strength after child birth, this means that the mothers have spent 620,000 to 1,240,000 years in invalidism or partial invalidism needlessly, or in part needlessly, because American men have not exhibited for American women the same regard, as to health protection, that is accorded to women in certain countries in Europe. This paragraph is

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respectfully referred to Fourth of July orators on American patriotism.

Fifth.—This means that these 620,000 mothers needlessly, or in part needlessly, have had broken sleep and rest for many months during the nursing period of their children. Respectfully referred to the fathers after a few nights of the toothache.

Sixth.—This means that 620,000 mothers have needlessly or in part needlessly passed through the cares and inconveniences of the "diaper period"—for details as to this matter, American fathers are respectfully referred to American mothers.

The question as to whether American mothers would be justified in going on a "strike" is respectfully referred to the newly created Department of Labor.

The question as to how much respect is due to the average American voter, judged from the standpoint of local public health laws and their enforcement, is referred to the voters themselves.

HAD A HOOSIT.—"I, well, I like my yob," said Hilda. "We got cremated cellar, cemetery plumb-ing, elastic lights, and a hoosit." "What's a 'hoosit,' Hilda?" "Oh, a bell rings. You put a thing to your ear and say 'Hello,' and someone says 'Hello,' an' you say 'hoosit.'"

THE IRREDUCIBLE MINIMUM OF KIDNEY SUBSTANCE.—The liberal surplus of renal tissue which the body possesses for the purposes of urinary secretion is sufficiently emphasized by the absence of any pathologic systemic upsets when an entire kidney is removed, as occasionally happens in surgical experience. One intact remaining kidney can adequately perform the functions of excretion which the metabolism calls for. At what point the limit of safety is reached—that is, how much kidney substance is indispensable for the routine requirements of the organism—is primarily a question for experimental solution. One method has consisted in excising segments of the organ and thus by gradual reduction of the kidney substance determining what is the irreducible minimum of the latter compatible with the continuance of health. Those who have proceeded in this way have placed the limit at not less than one quarter of the renal tissue. Pearce, whose observations are perhaps the most careful of all those based on this method of excision, concluded that the removal of larger amounts, and sometimes of three-quarters of the substance, leads to the metabolism condition of starvation. The metabolism in excessive kidney reduction is that of inanition dependent on gastro-intestinal disturbances presumably due to faulty chemical correlation. Apparently toxic substances are eliminated into the intestine. Bradford's reduction experiments even led him so far as to suggest that the kidneys have an influence on general metabolism, for he observed conditions which appeared to him to be due, not to retention of products of normal metabolism, but to an increased tissue disintegration affecting especially the muscles. Subsequent researches have made it appear probable, however, that mere reduction of kidney substance, even to a minimum compatible with life, does not lead to disturbances of metabolic function capable of being utilized in the explanation of uremia.

Nature's method of bringing about a pathologic decrease in the amount of functioning renal tissue is usually far less sudden and certainly

less severe than any process of instantaneous surgical excision. The phenomena of disease are more closely imitated by the plan of inducing necrosis by ligation of branches of the renal arteries. When this is carried out, as it has been by Dr. Pilcher in Cleveland, the functional efficiency of the kidney appears in even more favorable light than heretofore. As might be anticipated, ligation of one branch or both renal arteries—that is, approximately half of the blood supply—does not cause any noticeable disturbance in renal performance. The urine remains practically normal. Shutting off three-fourths of the arterial supply results in marked temporary prostration, anorexia and loss of weight, with nitrogen output much greater than the intake. The animals gradually recover, however. On the apparently justified assumption that the ligated areas take no part in urine formation, it is permissible to conclude that one-fourth of the kidney is able to secrete urine almost as effectively as the entire kidney area. The urine was practically normal; there was an absence of protein and casts. Cardiac hypertrophy did not occur.

The theory that the kidney furnishes an internal secretion having an important influence on general metabolism has been exploited repeatedly since it was first brought to general notice by Brown-Séquard. There is little to substantiate it at present. Certainly if such a function exists it is not noticeably disturbed by events which exclude the physiologic activity of 75 per cent of the kidney substance.—*Jour. A. M. A.*, Aug. 23, 1913.

THE LONG-USED TERM "CONGENITAL HERNIA" for that variety in which the testicle lies in the sac is misleading in so far as it suggests that all the other varieties are not congenital. Many types of inguinal hernia are congenital; perhaps all are.—*Amer. Jour. Surg.*

HARD WATER FALLACIES.—We have received a communication from a lay correspondent who expresses his belief "that the lime in common water has much to do with bringing on old age." and that therefore everyone should drink distilled water. We fancy this belief is fairly common, but of course it is fatuous. The supporters of this view seem to regard water as the only possible channel by which lime salts are conveyed to the organism. They appear to forget altogether the fact that lime salts are inseparable from the common every-day articles of food, so that if hard water were left out of the dietary there would still be secured a large intake of lime salts which could only be avoided by a hunger strike. A tumbler of hard water rarely contains 1 or at most 2 grains of chalk, and a baby requires, on theoretical considerations, at least 4 grains of lime daily. Assuming that the average daily amount of water consumed is about five tumblers, the amount of lime daily introduced into the economy through this vehicle would not exceed 10 grains, assuming the water to be very hard. But the amount introduced in food is much more than this. A pint of milk, for example, contains more lime salts than a pint of lime water, the amount in milk being about 10 grains. Eggs, the cereals, and vegetables contribute their quota, and when the total amount of such foods consumed per day is taken into the calculation the ingestion of lime salts is clearly considerable, apart altogether from what may be taken in solution by drinking even the hardest water. It is probable that the amount of lime

salts taken through food easily exceeds the quantity present in gallons of hard water; the use of distilled water therefore provides an ineffective method for preventing the mischief which it is assumed lime salts may do the body. Also the drinking of distilled water is opposed to physiological considerations and may produce injury to the organism. When cells are placed in distilled water the passage of the water into the cells rapidly occurs owing to a difference of osmotic pressure, and the cells swell up and may finally burst and die. This action, which can correctly be described as poisonous, is observed when distilled water is drunk, for in this case the surface layers of the epithelium of the stomach undergo considerable swelling; salts also may pass out and the cells die and be cast off. Such a process may well resolve itself into a catarrh of the stomach. There is a continental water which is remarkably pure but poisonous because it produces gastritis for the reasons just quoted. It is doubtful whether hard waters are unwholesome, but the inconvenience caused by the furring of domestic services and kitchen apparatus by the deposit of chalk from such waters is very real, and affords a just cause of complaint in many London districts. There are no expenses connected with the storage or filtration of the deep-well supplies in the metropolitan area, as is the case with the river supplies. The deep-well waters are neither stored nor filtered, and therefore they might be softened. The water so treated, however, would not have the qualities of distilled water, nor would its use avoid "bringing on old age."—Lancet.

IN LUMBAR KIDNEY OPERATIONS take pains to protect the ilio-hypogastric nerve. Its division causes paralysis of a considerable area of the abdominal wall and produces a distressing pseudo-hernia. If the nerve is divided in the operation suture it.—Amer. Jour. Surg.

COMPARISON OF POLYNEURITIS OF FOWLS WITH HUMAN BERIBERI.—It would seem that there can be no doubt that beriberi in man is the result of a too nearly exclusive diet of polished rice, or of other foods lacking in what we may for the present term a neuritis-preventing substance; such, at least, are the conclusions justified by the extensive studies of Fraser and Stanton and of Strong and Crowell. It has likewise been proved that polyneuritis of fowls—so-called polyneuritis gallinarum—can be induced by a similar diet. The cause of the two diseases is therefore the same, and abundantly justifies the use of the experimental animal in the search for curative or preventive measures to be applied to the human situation.

In this way we have learned that both meat and potatoes contain a certain, but relatively small, amount of the neuritis-preventing substance; and the immunity from beriberi of those races whose main articles of diet are meat and potato is explained. We have learned, further, that ordinary white bread is quite lacking in antineuritic substance; and thereby light is thrown on the appearance of beriberi on Norwegian sailing ships about 1894, when wheat bread was substituted for rye bread in the dietary. A similar result was reported by Little in respect to the native population of Labrador and Newfoundland, which lives almost exclusively on white wheat flour at certain seasons. By experimental methods it has further been shown that probably most leguminous seeds—peas, beans, peanuts, etc.

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—will be efficacious as an antineuritic adjuvant to restricted diets of bread or rice.

Despite the useful comparisons which have been made and the analogies discovered, it now appears from the investigations of the U. S. Army Board or the Study of Tropical Diseases as They Exist in the Philippine Islands that the symptomatology and pathology of polyneuritis gallinarum cannot be regarded as identical with that of beriberi in man. As the Manila investigators, Vedder and Clark, note, there is more similarity than difference between the two diseases. They have never observed any edema in fowls at all comparable to wet beriberi in man, however, and while there are undoubtedly slight changes in the hearts of fowls suffering from polyneuritis, there is none of the hypertrophy which is such a characteristic finding in human beriberi. With respect to the fowls it also appears that the disease is not simply a peripheral neuritis as has generally been supposed; on the contrary, the entire nervous system appears to be affected. The symptoms of the disease in fowls, Vedder and Clark maintain, are not chiefly referable to degeneration of the peripheral nerves. Degeneration occurs before symptoms arise; advanced degeneration may be present accompanied by no symptoms at all; and degeneration of the nerves remains after recovery has occurred.—*Jour. A. M. A.*, Aug. 23, 1913.

SMALL EPIGASTRIC HERNIAE, easily overlooked, are often the cause of pains in this region simulating those of stomach ulcer, gall-stones, etc. Some of these, however, consist only of peritoneal fat without any sac. The treatment of these latter by operation will not always relieve the pains for which a deeper source must indeed be sought.—*Amer. Jour. Surg.*

THE THYROID GLAND IN INFANCY.—Perhaps there is nothing in medicine that is more interesting or that better shows how our knowledge has been brought together little by little than the history of our knowledge of the thyroid gland. Much that was learned became lost and had to be rediscovered. Conjecture upon conjecture was overturned to give way to beliefs a little nearer the truth. It shows that medicine has progressed aside from the laboratories which have to do with germs and parasites, and brings forth evidence very disconcerting to the antivivisectionist. As long ago as 1857 our scientific knowledge of the thyroid began when Schiff discovered the results which followed its removal and learned how to prevent these results by transplanting another thyroid gland into the peritoneal cavity of the animal. His work was soon forgotten and books continued to give for the existence of the gland explanations which now appear ridiculous. It was not until the late '70's that the "cretinoid state supervening in adults," as described by Gull, was discovered to be associated with atrophy of the thyroid gland. A few years later the surgeons recognized the chain of symptoms following total extirpation of the gland for goiter. Then it was that Sir Felix Semon pointed out that cretinism and myxedema of adults are identical and probably due to the same cause. This suggestion of Semon's was taken up in an organized investigation by the Clinical Society of London with Sir Victor Horsley in charge of the experimental work. He, quite independent of Schiff's long-forgotten work, recommended the grafting of thyroid as a method of treating myxedema in man. His suggestion was followed up by some surgeons and it was noted

that the patients' condition improved immediately. It was this immediate occurrence of the improvement that led Murray to treat a myxedematous patient by hypodermic injections of an extract of the thyroid gland of a sheep. This proved to be a remarkable discovery and was soon enhanced by the further discovery by others that just as good results followed the administration of the extract by mouth.

At the same time that this good work was going on Gley rediscovered the parathyroid bodies which had been described ten years before by Sandström. It was because of ignorance of the physiology of these bodies that the surgery of the thyroid was unsuccessful for many years. From the results of experimental extirpation of the thyroid gland in animals it was held for a time that the thyroid was of less importance to herbivorous animals than to carnivorous animals. This was because one pair of the parathyroids in herbivorous animals is situated much lower and hence escaped removal. A wonderful amount of experimental work was carried on to learn more about the thyroid and parathyroids. All experimental work was soon somewhat checked, however, by the discovery of accessory thyroid gland tissue and accessory parathyroid bodies whose presence or absence could not be ascertained without an almost illimitable amount of work.

There is a recent contribution which may be turned to some practical advantage. S. Simpson (*Jour. of Exp. Physiol.*, Vol. VI, No. 2) has shown that age is an important factor in the effects which follow thyroidectomy and parathyroidectomy in the sheep. Simpson found that

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cretinism followed extirpation of the glands only in very young sheep. The practical bearing of this is that the thyroid is of the greatest importance during infancy and that if cretinism is to be properly treated it must be recognized early and treated immediately. His success in causing such well-marked cretinism is no doubt partly due to using lambs born of thyroidectomized ewes. There are many things which point to the relation of the thyroid to the reproductive system. In fact, in some of the lower forms of animals the probable analogue of the thyroid discharges its secretion directly into the uterus. Cretins are sterile. The reason why thyroidectomized animals may become pregnant is because of the accessory gland tissue or the well-known compensatory hypertrophy of similar tissue in the pituitary gland. The production of cretins of these lambs from thyroidectomized ewes recalls the heredity factor noted in Switzerland where goitrous parents are apt to beget cretins. This should serve to put us on our guard in observing the infants born of mothers with diseased thyroid glands. Cretins are rare, but if they are to be prevented treatment must be begun very early.—Med. Record, July 26, 1913.

NOT THE SAME.—“Are you the same man who ate my mince pie last week?” “No, mum; I’ll never be th’ same man again!”

LUBRICATION AND THE VOICE.—The reason why birds sing has been variously explained. Those inveterate anthropomorphists, the poets, with Shelley at their head, suppose them to sing for sufficiently complex human reasons. They mostly imagine them to have arrived at the idea of a Creator—an idea really only attained quite late in the course of man’s evolution—and they suppose their songs to be mainly expressive of praise and thanksgiving. The more gloomy Darwinians suppose that birds sing for no particular reason, but that the singing birds, through dint of attracting the non-singing females of their tribe to their sides, have in the course of ages tended to survive, while the silent males have tended to become extinct. It has been left to a writer in the “Morningside Mirror” to advance what strikes us as an entirely new and extremely plausible theory for the song of birds. Birds sing, says this theorist, who is also a very neat versifier (C. Dalreme by name), because they are cheerful and because their throats have been lubricated by drink. “Singers need plenty to drink, whether they are birds or human beings. This is evidenced by the merry noise in our gardens immediately after the heavy rains in July. It is then the birds have been getting a good drink.” The same ingenious writer, with the help of thoroughly soaked bread, has persuaded birds to sing right into the middle of the winter, the bread “being as good as a drink of rain to them.” Physiologists may perhaps be able to explain why some races of mankind are talkative and tuneful and others silent. Celtic races, living in damp climates and not unacquainted with the influence of liquor, are variously noted for their beautiful singing voices or for their great conversational powers. On the other hand, some morose and also hard-drinking races are pretty fairly silent, and popular wisdom supposes a man of few words to be likewise one of deep potatory powers. The question has manifestly not been thought out. The ancient Scandinavians were shockingly hard drinkers, and they represented Odin as eating nothing, but as subsisting in Val-

halla entirely on wine. The Lesser or Prose Edda, which is the bible of the ancient Vikings, is a curiously silent book in the sense that song and singing, if we remember rightly, are scarcely, if ever, mentioned there. Neither is the “Mabinogion,” though blaringly full of the sense of color—vermilion and gold running riot throughout it—if we remember our early readings, much concerned with the human voice, yet the old Celtic heroes were as given to the wine-cup as Odin himself. Wine and song, in popular philosophy, have always been twin brothers, despite the silence of Teutonic and Cymbric classics. Wine implies excitement, and the true originality of the latest suggestion concerning the singing of birds lies in this, that song depends on a lubricant rather than on an intoxicant.—Lancet.

TO ENCOURAGE THE DRAINAGE OF PUS from the pelvis through an abdominal wound it is helpful to have the patient lie face downward at intervals, preferably with the foot of the bed elevated, but not until two or three days after the operation.—Amer. Jour. Surg.

SMALL EPIGASTRIC HERNIAE are usually of fat and contain no sac.—Amer. Jour. Surg.

TOO THOROUGH PURGING in preparation for a laparotomy contributes to post-operative distress. A simple laxative or an enema is sufficient for most cases, and even these can often be dispensed with. Urgent cases operated upon without any preparation usually do as well, as far as the bowels are concerned, as those previously purged.—Amer. Jour. Surg.

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SCHOOL FOR HEALTH OFFICERS.—Conducted by Harvard University and the Massachusetts Institute of Technology.—Beginning this fall, Harvard University and the Massachusetts Institute of Technology are to maintain in co-operation a School for Public Health Officers. The facilities of both institutions are to be available to students in the school and the certificate of public health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this school is to prepare young men for public health work, especially to fit them to occupy administrative and executive positions such as health officers or members of boards of health, as well as secretaries, agents and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work and other forms of instruction offered by both institutions, and also by special instructors from national, state and local health agencies.

The requirements for admission are such that graduates of colleges or technical and scientific schools who have received adequate instruction in physics, chemistry, biology and French or German may be admitted to the school. The medical degree is not in any way a prerequisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M.D. before they become members of the School for Health Officers.

The Administrative Board which will conduct the new school is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard, and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of Director, and the work of the school will be under his immediate supervision.

BEFORE TERMINATING A MASTOID OPERATION scrape clean the exposed bone surface. The wound will granulate more quickly.—*Amer. Jour. Surg.*

IF PAIN AND HEMATURIA ATTEND the administration of hexamethylenamine it is conclusive that the dosage is too large and is causing renal irritation.—*Urologic Review.*

PROCTOLOGY COME INTO ITS OWN.—In his presidential address at the fifteenth annual meeting of the American Proctologic Society, L. J. Hirshman, of Detroit, stated that "Proctology come into its own" is in reality the study of the entire intestinal tract, its diseases and their remedies. A proctologist becomes skilled to a high degree in the medical and surgical treatment of the diseases of the lower bowel. A medical practitioner, sufficiently skilled and competent to treat diseases affecting any portion of the intestinal tract, should be competent to treat all portions. The modern Proctologist, therefore, must be an intestinal surgeon. He must have some knowledge of modern views and discoveries bearing on the digestive tract, as they have a direct bearing on intestinal function and pathology. He should no more limit his activities to the rectum and sigmoid alone than does the laryngologist to the larynx, or the urologist to the urethra.

An arbitrary line of division which limits a specialist's activities to the lower six or eight inches of the colon is absurd. The proctologist has no moral right to withhold his special skill in intestinal surgery from the patient who suffers from diseases of the small intestine or upper colon. The larger problems of intestinal stasis, chronic inflammatory conditions and malignant diseases of the small and large intestines demand the best that is in every Fellow of our organization. He should ever study and fathom out the problems of etiology, pathology and proper therapy.

The establishment of a section on Gastroenterology and Proctology in the American Medical Association would greatly increase the value of that organization to every one of its members who comes in contact with diseases of the alimentary tract.

It is the American Medical Association which should foster all that is new and valuable in medicine. It is the greatest medical educational institution in our country, and the Fellows of the American Proctologic Society should be the most enthusiastic supporters of such a section, if established.

ALL ERUPTIONS upon the face are influenced by the state of the digestion.—*Urologic Review.*

BEFORE APPLYING CARBONIC ACID SNOW to a wart it is best to shave down the little growth nearly level with the skin.—*Urologic Review.*

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symptoms attendant upon such inflammations. In addition to the above definite therapeutic powers, it should be remembered that **GONOSAN'S** value is further emphasized by its comparative freedom from those qualities—gastric and renal irritation—usually found in other balsamics.

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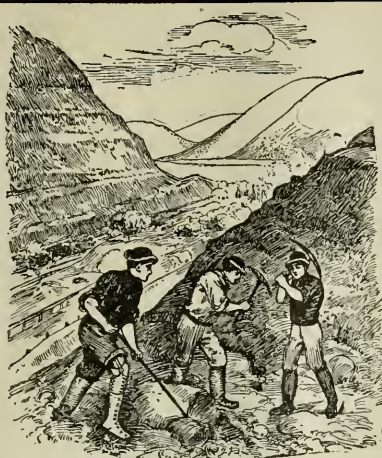
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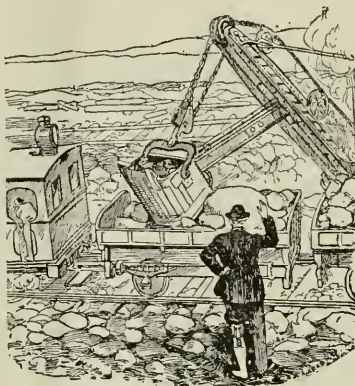
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STEAM SHOVEL AT WORK

MIDLINE SINUSES or swellings are always suggestive of dermoid cysts.—*Amer. Jour. Surg.*

THE OXYGEN CONTENT OF THE BLOOD IN LOBAR PNEUMONIA.—Butterfield and Peabody found that when pneumococci are grown (outside of the body) in blood or in solutions of hemoglobin, there results a lowering in the power to combine with oxygen due apparently to the formation of methemoglobin.

Following up these results, Peabody injected rabbits with very large doses of pneumococci so as to produce a rapid and intense bacteriemia. During the course of this infection he found the oxygen-combining power of the blood to fall progressively until death took place, and at the same time an even more marked fall in the content of oxygen of the arterial blood. These changes in the blood, which are quite analogous to those that occur when the pneumococcus is grown on blood in the test tube, were found to be due to the change of hemoglobin into methemoglobin.

Peabody now undertook to study the oxygen content of the blood in lobar pneumonia, in which one naturally would expect disturbances in gas exchange because of the involvement of the lungs, and, in view of the results of the experiments just mentioned, changes in the hemoglobin molecule also. Peabody finds, from a thorough study of the blood in twenty-five cases of lobar pneumonia, that in uncomplicated cases the oxygen content of the blood as a rule remains within normal limits. Here the decrease in the respiratory surface is compensated for fully, but occasionally (as seen by Peabody in two cases) the oxygen may be lower and the carbon dioxide higher than normal, indicating an interference

with the respiratory exchange of gases. In the terminal stages of fatal cases there occurs frequently a progressive diminution in oxygen content in the blood associated with a simultaneous loss in power to combine with oxygen. Peabody found these changes in cases of profound pneumococcemia, and they no doubt depend on the formation of methemoglobin as observed in the test tube experiments and in rabbit pneumococcemia. It is altogether reasonable to regard this change in the hemoglobin molecule, by virtue of which it no longer readily takes up and gives off oxygen, as a factor of importance in the causation of death in many cases of pneumonia. The results of these studies form a distinct addition to our knowledge of the changes that may occur in pneumococcus infection.—*Jour. A. M. A.*, Aug. 2, 1913.

THE EMPLOYMENT OF NARCOSIS in a case of "stiff and painful shoulder" may reveal a cause not otherwise ascertainable, e. g., subluxation.—*Amer. Jour. Surg.*

THE FUMES OF THE MATCH.—The consumption of matches has now reached amazing proportions, which may be attributed largely to the smoking habit. A few years ago something like eighteen million gross of boxes were consumed per annum, 63 per cent of which were the "strike anywhere" match and 37 per cent the safety match. About twelve years ago the percentage of safety matches consumed was only 18 per cent, the consumption of the "strike anywhere" match being 82 per cent. More recently the safety match is being shown to overtake the "strike anywhere" match, with advantages, we think, to the public.

The modern match is a great advance on the match of a decade or so ago. Yellow phosphorus has been banished from its composition—a fact which has conferred benefits not only on the operatives engaged in the manufacture of matches but on the consumer also. The combustion of phosphorus in the air of course adds to it an undesirable constituent. The modern "strike anywhere" match contains phosphorus in the form of a sesquisulphide, which does no harm to the factory hand, but which, all the same, gives off irritating and poisonous fumes when struck—namely, the oxides of phosphorus and sulphur. The safety match frequently gives off sulphur dioxide in irritating quantity, but no phosphorus. The phosphorus in this case is on the rubber on the box in the shape of red amorphous phosphorus, which is not poisonous, and as little of it actually burns on the friction of the match very little oxide of phosphorus is formed. Some of the matches contain the poisonous lead oxide or chromates as oxidizers, while in others potassium chlorate and manganese dioxide are employed for the same purpose. In spite of the enormous number of matches used, the fumes they give off on combustion cannot be considered a serious source of mischief. But these fumes do unquestionably pollute the air, more especially when they are used frequently, as in a railway carriage or smoking saloon. We may be thankful, however, that both the old yellow, or "live," phosphorus match and the sulphur-tipped lucifer are extinct, inasmuch as their effect in vitiating the air was appreciable.—Lancet.

THE EFFECT OF STIMULATING CELL NUTRITION.—In many conditions of a chronic character improvement may be expected to follow the use of agents calculated to influence nutrition of the individual cells. Thus, if the cells be stimulated to better assimilation and elimination, diseased states due to interference with these normal functions of the cellular constituents of the vital organs must of necessity undergo a change, for the underlying and continuing cause is being altered. The drugs usually employed for this purpose are those termed the alteratives, an efficient representative of which class is IODIA (Battle).

IODIA is a combination of iodide or potash with the active principles of the green roots of *stillingia*, *helonias*, *saxifraga* and *menispermum*. It has been found in severe clinical tests to exert an influence on the vital functions, the explanation of its favorable effect being sought for in the stimulating action of its several constituents

on the normal processes of the body's cells. In chronic gout and rheumatism, glandular diseases and chronic affections of the skin IODIA will offer evidence of its therapeutic value.

ANTIQUITY OF THE HUNGER STRIKE.—History repeats itself. The hunger strike is not an invention of the suffragists, but is a custom of great antiquity. John Scott, in the sixteenth century, while confined in David's Tower in Edinburgh Castle, abstained from meat and drink for thirty-two days in order to show that he was under the special protection of heaven. The procedure of fasting was a legal institution of ancient Ireland. Having exhausted all legal means to conquer the resistance of a powerful debtor, his creditor had only one means of constraint left to him—that of standing before the door of the debtor and of refusing to take nourishment till the debt had been paid. If the debtor allowed the person fasting to die of hunger he was responsible for his death and had to pay his family a considerable indemnity in addition to the original debt. This was called "fasting against or on a person." Dom Gougaudd adds that in no Christian society to his knowledge has there been made such frequent and daring use of this curious process as in medieval Ireland. The custom is frequently mentioned in the Brehon laws. Fasting seems to have been practiced when it was desired to turn a heathen king into a Christian, and the monarch, if hard of heart, counterfasted as a means of protecting himself against conversion. It is recorded that St. Patrick "fasted upon" Loegaire, the heathen overking of Ireland, until the latter embraced Christianity, and in accordance with the superstitions of the times the king and his family felt it incumbent upon them to fast at the same time until this test of endurance was won by the saint. The custom of hunger-striking for the same purpose was formerly common in India, but it is now almost obsolete. It is known in the East as *dharna* (or *dhurna*) *baithna*, or "sitting dharna." It was chiefly resorted to in order to force payment of a debt. The creditor would sit at the debtor's door and taste no food until his claims were satisfied. If the debtor allowed the creditor to starve, it was believed that he laid himself open to supernatural punishment, especially if the starver happened to be a Brahmin; accordingly, Hindus of lower caste would sometimes engage a Brahmin to starve for them.—Brit. Med. Jour.

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LABORATORY PHYSIOLOGY.—In view of the growing complaints about the overcrowding of the medical curriculum, A. D. Bush, of Burlington, Vt., criticizes the amount of space devoted to comparative physiology and animal experimentation which has not a clear bearing on the future life work of the students. The time spent on experiments in general biology constitutes a usurpation of the space that should be given to other subjects, which have to be slighted; the subject should be limited to the preliminary requirements. What were valuable as original investigations are not so as routine instructions. The plea that experimental work on frogs, cats, guinea pigs, etc., has value as formal training he thinks is not demonstrated, and quotes from psychologists in support of his views. Several manuals of laboratory physiology are criticized in detail along these lines. He thinks that the deficiency in psychology and training which he assumes is, in part at least, due to laboratory manipulations, is largely responsible for the pseudo-religious and pseudo-scientific cults of healing, and he gives a concrete instance of the value of the psychologic tests in the treatment and proper development of an apparently degenerated child. Ninety-eight per cent., he says, of the customary frog work could well be thrown out; also the greater part of the experiments conducted on animals. For all the frog muscle-nerve experiments, it is perfectly feasible, he claims, to substitute related experiments on living human subjects, and it is uneconomical as well as unscientific to spend two hours in learning by instrumental manipulation what could be more thoroughly comprehended by five minutes' concentrated thinking. He concludes with the fol-

lowing quotation from O'Shea: "In every machine there are economical as well as wasteful methods of operation, and the same must be true in principle of the brain. A given amount of force can accomplish more in promoting activities in well-organized than in poorly organized areas."—*Jour. A. M. A.*

ALWAYS REGARD a persistent heaping up of the epithelium in or around a varicose ulcer with suspicion; it may be becoming malignant.—*Urologic Review.*

SEX PREDISPOSITION IN GOITER.—Of the 177 cases of goiter observed by Schiotz in Norway only 10.2 per cent. were males. Of the entire population of the town in which his observations were made, 10.5 per cent of the male inhabitants had goiter and 86.3 per cent. of the females. This preponderance of the disease in the female sex has frequently been pointed out as an argument against the drinking-water theory, but the supposition can be combatted by the assumption that in females the physiologic processes of organs with an internal secretion predisposes the thyroid to disease. That pregnancy has a strong influence in the development of goiter, tetany, exophthalmic goiter, and myxedema is a well known fact. The author noted that in one of his patients the enlarged thyroid grew transiently larger just before each menstruation. This is a phenomenon that has been observed by others.—*Norsk Mag. for Laeg., Jan., 1913.*

MOST PEMPHIGOID ERUPTIONS, especially in children and young subjects, are accompanied by an enfeeblement of the general health.—*Urologic Review.*

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DISSERTATION ON DIPLOSAL *

By Dr. Leo Familier, of Lodz, Russia

AMONG the large number of new remedies brought out during recent years, not a few belong to the salicylic acid compound. Many have had a very ephemeral existence but a few have enjoyed the confidence of physicians and are in daily use. Among these may be mentioned salol, salipyrine, salophen, aspirin, novaspirin, diaspirin and a more recent preparation, diplosal. In all these drugs, the active and important ingredient is salicylic acid, a chemical compound first isolated by Piria in 1839 by fusing the salicylic aldehyde obtained from salicin with potash. Up to the year 1860, all salicylic acid was manufactured either from salicin or oil of wintergreen, so that it was a very expensive drug until Kolbe published a synthetic method with phenol as a starting point. Described briefly, the method consists in evaporating a solution of phenol in soda lye to dryness, and then heating the dry powder in a stream of carbonic acid to 220-250° until no more phenol is carried over. The resulting disodium salicylate is dissolved in water and salicylic acid finally set free by the addition of hydrochloric acid. Other methods were soon described by R. Schmitt, W. Hentschel and others.

Salicylic acid itself occurs in white needles, possessed of a slightly sweet and sour taste. It is only slightly soluble in cold water, more readily in hot water, alcohol, ether and acetose. It readily forms salts with metals and radicals. For its detection,

iron chloride or iron alum is generally employed. An intense, bluish-violet color will result if these reagents are added to an aqueous or alcoholic solution, and this reaction is still distinct in a dilution of 1:50,000. When the test is negative, the solution to be tested may be evaporated to a small volume, acidulated with hydrochloric acid and extracted with ether. The ethereal solution is then permitted to evaporate and the residue is taken up with hot water or dilute alcohol and tested as above.

Salicylic acid has four distinct properties. It is antiseptic, keratolytic, antiparasitic and antipyretic. In former years it was employed for almost all febrile conditions and it is in this way that the supposed specific effect on rheumatism was discovered. The effect of salicylic acid on temperature is not the same as that of quinine, for while the latter drug inhibits the heat centers and lowers nitrogen metabolism and uric acid excretion, salicylic acid paralyzes the heat regulating centers and usually causes profuse perspiration.

Salicylic acid is employed externally as a mild antiseptic. Its keratolytic properties make it a very valuable drug in many skin diseases. Internally, the chief indications are in the various febrile disturbances to reduce temperature; in catarrhal and inflammatory conditions of the bladder as disinfectant; in migraine, sciatica, trigeminal neuralgia to relieve pain, and finally as specific in acute articular rheumatism.

The acid is by no means free from after-effects. Thus, its keratolytic properties will also be evident upon the lining of the gastro-intestinal tract after internal administration. In large doses, an intoxication re-

*Inaugural Dissertation delivered before the University of Berlin, Aug. 2, 1913. Med. Klinik d. Charité, Berlin.

sults, which in many ways resembles quinine poisoning. The patients complain of tinnitus, deafness, and mental torpor; they vomit, and finally the heart and respiratory centers become involved. Dyspnea may be complained of, and, in young girls, peculiar conditions of excitement. Finally, there is a decidedly injurious effect upon the kidneys, and both albumin and blood may be voided.

All these bad after-effects soon led to the introduction of sodium salicylate as a more suitable therapeutic agent. This is much better tolerated and usually preferred by the patients. Inasmuch as salicylic acid is slowly split off from this salt within the organism, the effects are the same, except that there is very little antiseptic action. The digestive tract is usually spared, but there remain the same deleterious effects upon the heart, brain, and kidneys.

Salol, a combination of salicylic acid with phenol, is not split up before it reaches the intestines, hence virtually never gives rise to gastric distress. There is, however, always danger of phenol poisoning; hence large doses should be employed with caution.

Theoretically, the ideal preparation of salicylic acid is diposal, the salicylic acid ether of salicylic acid itself, introduced in 1908 by Boehringer & Sons. It may be regarded as aspirin in which the unnecessary acetic acid is replaced by salicylic acid. 100 parts of this drug correspond to 107 parts of salicylic acid, since it absorbs a certain amount of water in the intestines and then splits into two molecules of salicylic acid. It is at once evident that this drug presents certain advantages not possessed by the other compounds. It possesses no foreign, unnecessary or harmful radicals, and is far more concentrated. It is a colorless, odorless and tasteless powder which does not give the characteristic iron reaction. Owing to the fact that the preparation is virtually insoluble in water and dilute acids, but much more soluble in dilute alkalis, it will pass the stomach unchanged and hence cause no irritation there. It is decomposed only in the intestines where the active salicylic acid is set free. Even in the test tube there is only a very slight inhibition of the proteolytic effect of pepsin and hydrochloric acid on proteids.

The absorption of diposal is tested by the iron reaction performed on the urine. It was found that after 1 gram (15 grains) taken on an empty stomach, salicylic acid will promptly appear in the urine in from 40 to 45 minutes, unless there is some affection of the kidneys or intestines. Small

doses are totally excreted within 24 hours; larger doses may require 42 to 46 hours. The amount excreted daily does not generally exceed 2 Gm. (30 grains). With continued use, there is thus an accumulation within the system of salicylic acid, so that an effect may be obtained even some time after the drug has been discontinued.

Experiments have also been conducted on fish, to show that diposal locally has hardly any irritating properties and thus cannot be considered a keratolytic. Salicylic acid will never appear in the urine after the local use of diposal.

Despite its recent introduction, diposal has already been tested clinically by a large number of observers.

Prof. Minkowski has used diposal in articular and muscular rheumatism, neuralgia, pleurisy and cystitis in doses of 15 grains 3 to 6 times, daily, and has obtained very good results. The fever usually disappeared in two to three days, and the articular symptoms promptly subsided. Good effects were also seen in 10 cases of subacute or chronic articular lesions, where other salicylic acid preparations had already been employed, though other, more diaphoretic preparations are often preferable here. Even with very sensitive patients there were no complaints of bad effects on the stomach. Patients who had daily taken 75 to 90 grains for weeks never exhibited tinnitus or profuse perspiration, and albumin never was found in the urine. Nine cases of acute articular rheumatism reacted promptly to the drug.

Levy reports on 80 cases of acute and chronic articular rheumatism who received up to 90 grains daily. The effect seemed to be the same as that of pure salicylic acid, without its after-effects. Acute polyarthritis was always improved after two to three days of medication, and splendid results were also seen in muscular rheumatism and sciatica. In chronic polyarthritis, the results were less marked, but other salicylic acid preparations were no more effective in these cases. This author is also enthusiastic over the absence of after-effects, and noted slight tinnitus in only a few cases.

Dr. W. Strauch gives four times daily 1 grain in acute and chronic articular rheumatism, sciatica, exudative pericarditis and gonorrheic arthritis. The only after-effects were slight tinnitus in a few cases.

Dr. Thuer has compared the drug with acetylsalicylic acid, using $7\frac{1}{2}$ grains of diposal six to eight times daily. Not in a single case were there any symptoms of intoxication, though occasionally, slight gastric distress was complained of. There is

less reduction of temperature and less diaphoresis than with acetylsalicylic acid. The chief indications for the use of diplosal are when the stomach is sensitive or profuse perspiration is to be avoided.

Dr. Mollon reports some brilliant results in acute polyarthritis. All his patients could resume their work after one week's treatment. One case of sciatica was treated for two months ineffectually with various drugs, but was only cured after being given $7\frac{1}{2}$ grains of diplosal 12 times daily. This author has observed profuse perspiration at night, probably because he resorts to large daily doses.

Dr. Schulze, on the other hand, prescribes 15 grains only three times daily, and believes there is no advantage in giving larger doses. The curative effect was better in acute than in chronic articular rheumatism. As special advantage, he mentions the absence of profuse perspiration.

Dr. Gawrilow, of Odessa, uses $7\frac{1}{2}$ to 15 grains 3 to 8 times daily. The effect is the same as with like doses of sodium salicylate, but much larger amounts may be prescribed without untoward effects, except occasionally ringing in the ears. As much as 120 grains daily were given.

Dr. Pierre Barbier considers diplosal more effective and better tolerated than all other salicylic acid compounds. Often the patients had been treated with acetylsalicylic acid or sodium salicylate, but did not make any real headway until diplosal was substituted. The effect in chronic articular rheumatism is not so good, though much superior to that of other salicylic compounds. The only disagreeable symptoms sometimes seen were tinnitus and deafness. Since profuse perspiration does not follow its administration, diplosal can quite safely be given to tuberculous or other weakened individuals.

Dr. Silva reports several cases where gastric disturbances and skin eruptions, following the administration of other salicylic acid compounds, promptly vanished when diplosal was substituted.

Dr. Fried lays stress upon the slight perspiration and the absence of toxic after-effects.

Dr. Schläfli treated cystitis with diplosal, and considers it more potent than all other drugs except acetylsalicylic acid. Unlike the latter, however, it does not give rise to gastric distress, profuse perspiration, or other signs of intoxication.

Dr. Moschetti has obtained good results in acute gonorrheic urethritis, when the urine was soon cleared up and the burning sensation rapidly disappeared.

Dr. Schwenk used the preparation in acute and chronic, simple and gonorrheic, cystitis, pyelitis and urethritis, and has been most successful in the chronic cystitis of prostatic hypertrophy.

Braun, finally, recommends diplosal in follicular, phlegmonous, and suppurating tonsillitis. He believes the tonsillitis can be cured with the drug and that articular rheumatism can thus be prevented. Aspirin and sodium salicylate often do not accomplish this. All the disagreeable after-effects of the salicylates are absent.

The reports of these authors may be summarized as follows:

1. Diplosal is better tolerated than all other salicylic acid compounds, and since it shows virtually no after-effects, it can be given for a long time.

2. The best results are always seen in acute articular rheumatism.

3. Most authors are agreed that profuse perspiration does not occur, although one author speaks of this symptom after large doses.

Most authors regard diplosal as equally as effective as pure salicylic acid, and certainly not inferior to the other drugs in common usage. A few consider it superior to all, while others look upon it as equally as effective as aspirin.

Personally, I have used diplosal in 35 cases, including 24 cases of acute polyarthritis, 7 of chronic polyarthritis, and 4 of gonorrheic and luetic monarthritis. In the 24 cases of acute articular rheumatism diplosal proved very effective. The best results were obtained where the drug was used from the very beginning. In only two cases no results were seen, but here the drug was administered for only a short period and all other salicylic acid preparations were equally as ineffectual.

In 7 cases of chronic articular rheumatism brilliant results were obtained in two, a slight result in two, and no result at all in three cases. No better results could be obtained with any of the other preparations. In some cases the antipyretic effect of diplosal was less marked, in others more marked than that of aspirin or salicylic acid.

In gonorrheic and luetic articular affections, the effect was slight, and no better than that of other salicylic acid derivatives.

After-effects were seen in four cases. One must be excluded because the patient also suffered from epilepsy, while in a second, they were so slight that the preparation could be continued without interruption. In two other cases, the after-effects were also very slight. One can only conclude that diplosal causes very little disturbance and

that it is often possible to give it where all other salicylic acid preparations are out of the question.

Before a final verdict is rendered, several questions must be answered. What is to be expected of diplosal and what effect must it show in order to head the list of the salicylic acid preparations?

We know that salicylic acid shows its best therapeutic effect in articular rheumatism. While probably not a specific, it undoubtedly shortens the course of the disease and relieves pain and swelling. The enthusiasm with which salicylic acid was at first accepted can well be understood, for formerly these patients suffered for weeks and months, and usually ended up with ankylosis of the joints. To-day, however, salicylic acid can no longer be regarded as an ideal specific like quinine in malaria or mercury in syphilis, for relapses often occur during its administration, and heart and other complications cannot be prevented. According to some authors, the heart complications are even increased, when salicylic acid is given. We, therefore, cannot expect any more from diplosal in this respect than from pure salicylic acid, of which it consists exclusively. The chief advantage of diplosal over salicylic acid and other compounds lies in its concentration, and its almost complete absence of all disagreeable and injurious after-effects. With very rare exceptions, diplosal accomplishes what the other preparations do, and where diplosal is ineffectual the other preparations hold out no promises. Salicylic acid and acetylsalicylic acid are superior only as far as the antipyretic effect is concerned.

The chief indication for the use of diplosal is acute articular rheumatism, where a prompt effect can generally be obtained. The less marked results obtained in the more inveterate articular affections is probably to be explained by the absence of the diaphoretic effect of most of the other preparations. This, however, is a great advantage in cases of tuberculous or otherwise weakened individuals, who could not stand profuse perspiration. The greatest advantage, however, lies in the almost complete absence of after-effects. The drug is the least toxic of all the known salicylic acid compounds; severe intoxications virtually never occur, hence it can generally be given without interruption for a long time.

It is true that diplosal will not always replace salicylic acid and its best derivatives, such as acetylsalicylic acid, since it is less antiseptic and diaphoretic. It is, however, a very valuable addition to our armamenta-

rium, and is of special use where there is a sensitive stomach and medication has to be continued over a long period, and where it is necessary to avoid profuse perspiration.

URTICARIA*

By J. W. Miller, M.D., of Cincinnati, O.

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In a skin condition so common as hives, with varieties so numerous as to be confusing, the diagnosis is rendered difficult and the treatment of the various types is so unsatisfactory that the subject is worthy of our consideration, if only to recount experiences, in order that some of us may thus be encouraged to study more carefully our cases, with the hope that a treatment may be formulated that will in a great degree be superior to the palliative measures in vogue to-day.

The text-books describe urticaria as an inflammatory affection of the skin characterized by the formation of evanescent, whitish, and pinkish elevations of an edematous nature, attended by intense itching (Schamberg). This is a good description of the cases ordinarily seen, but it is not uncommon to see one of the atypical or less common types of the disease, and it is the writer's purpose to state his personal experience and to give a brief description of the different forms of urticaria, with an endeavor to make clear a subject that is confusing to the physician who includes diseases of the skin in his line of work.

Acute Urticaria.—Most often eruption appears suddenly, showing itself as firm, circumscribed, whitish, or pinkish elevations with reddish areola. The wheals last from a few minutes to several hours, disappear and are succeeded by others. They vary in size and shape, may be round, linear or irregular. They may involve any portion of the skin surface, or even the mucous membranes. The lesions may be few in number, or may cover almost the entire surface. Little thought would be paid to the skin manifestations if they were not associated with intense itching. All the types are characterized by itching, and it is this symptom that causes the patient to seek relief. The scratching induced by this marked localized edema of the cutis gives short temporary redness, but unfortunately the irritation thus produced seems to favor new lesions. The sensitive skin of the patient suffering from hives will not stand abuse, and new wheals form with the least provocation. In some urticarial subjects if

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we go over the skin with the finger nail, or better still with the blunt end of an ordinary penholder, wheals appear after a minute or two, showing what slight irritation will do. It must be borne in mind, however, that this is not an infallible test for one subject to urticaria, as it may also occur in other skin affections. The distinguishing characteristics are so well marked that no difficulty is met in the diagnosis of acute hives.

Chronic Urticaria.—We all know that free purgation and some alkaline lotion will abate most of our cases of hives, but how about the patients that have repeated attacks, patients with a so-called habit, or with exacerbations of the disease? These unfortunates are driven to distraction by the itching and skin irritation, the result of scratching, and both purgatives and external applications are soon discarded. Fortunately it is not very common.

From our experience it has been shown that results are more prompt when a thorough study of the patient's dietary is carefully gone into. The recent studies in immunity is now one of the most important phases in modern medicine. The relation of skin diseases to the gastro-intestinal tract has much to do with the subject of anaphylaxis. The therapeutic test—purgation, with relief of symptoms—satisfies us that certain food and drugs ingested cause in certain individuals distressing symptoms, and a common one is hives. Less annoying trouble, as an erythema, occurs at times, while even cases of violent gastro-enteritis with vomiting and diarrhea are seen. Formerly we spoke of these conditions as auto-intoxication, or an idiosyncrasy, cryptogenetic, etc., but since the experimental studies based upon the work of Richet and others we are in a fair way to better understand the question of anaphylaxis, and therefore in a position to treat our cases of urticaria more intelligently. "By anaphylaxis we understand a condition of the organism due to a preliminary sensitization by a small dose of protein substance followed by a condition of hypersusceptibility on the part of the organism to repeated doses of the protein" (Wile).

We have known for a long time that the great majority of cases of acute urticaria are induced by some disorder of the alimentary tract, and certain foods rich in proteids, as pork, lobster and crabs, are commonly at fault. Carl Bruck, in 1909, with an extract made from crab muscle after preliminary sensitization of guinea pigs, was able by a second injection after twenty days to produce typical anaphylactic

phenomena—shock, hemorrhage, dyspnea, itching, diarrhea, and thereby concluded that crab meat contains substances to which guinea pigs show hypersusceptibility, and he was also able to show the phenomena occurred in man by the following experiment: A male patient, twenty-four years of age, complained whenever he ate pork of violent itching and urticaria. A history of overeating pork sausage meat two years previous was given, and he stated that he was unable to eat pork in any form since. Bruck injected 10 C. c. of this patient's inactivated serum into guinea pigs, and twenty-four hours after they were injected with 5 C. c. of inactivated hog serum. Both animals became anaphylactic, one dying and the other recovered.

The urticarias of outside sources, such as those caused by nettle rash, insect stings and chemical irritants, Wolff Eisner assumes are due to the introduction of alien protein substances from without. Therefore, it is evident that our cases of urticaria must have a peculiar idiosyncrasy to certain proteins, following some initial sensitization of the organism, and a careful study of previous attacks of any disturbance of indigestion and certain outside influences must be made. Locally, menthol, five per cent, in camphorated alcohol, used as a spray, answered well in my cases.

Urticaria Papulosa (lichen urticatus).—Papular urticaria, a variety generally observed in children, is seen in the clinics oftener than in private practice, but the condition is more common than the textbooks would lead us to believe. Many cases heretofore diagnosed as scabies, which disease it resembles closely, have been treated month in and month out with the usual preparations only to be disappointed in results, and expert advice is finally sought. The lesions may appear as small, more or less typical wheals, which disappear leaving behind persistent papules. More often the lesions appear as papules from the start with here and there a scattered wheal. At the onset the papules may be situated in the center of a small wheal, which disappears in three or four hours. The papule itself disappears in from seven to fourteen days. Hence, on examination, the papules outnumber the wheals.

Lesions are situated for the most part on the extremities; the forearms and wrists are frequently involved, preferably the extensor surfaces. These papules itch intensely, and as a result the summits of many of them are scratched and covered with minute blood crusts. Scratching often causes secondary infection with the result

that pustules and even good-sized furuncles are frequently seen intermixed with papules. The papules disappear slowly, new lesions coming out from time to time. The lesions leave small brown stains. It is said this type is always confined to small children in a depraved state of health, but the essayist has seen many cases where the child appeared to be well nourished with no dyscrasia, also in children of parents who could well afford to properly feed and clothe the patient. It is still a debated question as to whether this condition is a true urticaria, or an example of a mild prurigo. The eruption may last three weeks to as many years, but as a rule papular urticaria clears up when the child is three years old, and if it should persist there is a probability that the condition is Hebra's prurigo. Scabies is the only condition likely to cause confusion. A careful search is made for the burrow. If found look for *acarus scabiei*.

This form of urticaria is highly refractory to treatment, therefore do not promise too much. As in ordinary hives a careful study of the patient is important to determine the cause. Diet does not seem to exercise the same influence over papular urticaria as it does in cases of acute hives, but it leads in importance. Next comes intestinal antiseptics, of which salol, ichthyol and an occasional dose of calomel are examples, changing from one to the other as the patient becomes tolerant or fails to improve. Lately the Bulgarian lactic acid bacilli tablets have been used with some success. Many of these little patients suffer from constipation, which is relieved by the usual method together with an occasional high enema. Rough woolen underclothing is discarded. An ordinary hair brush, instead of the finger nails, is urged to relieve the itching. Lotions containing tar, liquor picis alkaline, N. F., or anthrasol and ointments containing naphthol two per cent. are useful.

Giant Urticaria—Quincke's Disease.—This type of urticaria is also known as angioneurotic edema, urticaria edematosa, acute circumscribed edema and presents the cutaneous symptoms of tumor-like swelling of evanescent character. It is a variation of the common type, and frequently a part of a more or less general urticaria. The intensity of the edematous infiltration varies as to degree, and the parts that are most involved are the eyes, lips, mouth and ears. Occasionally the condition seems to be independent of urticarial manifestations. The writer has had two of these cases under his care recently.

Case 1. A. B., Presbyterian minister, thirty years of age, well developed, with no evidence of cutaneous or other disease. The circumscribed edema in this instance involved the eye, the swelling coming on gradually, several hours passing before the process was complete. The eyelids were completely closed and of a somewhat reddish color. At first glance one was impressed with the early picture of an ordinary black eye. In fact, the minister, who was in charge of a small country community, had even been accused of misconduct. The condition had lasted nearly a year when the patient called, and during that time three distinct attacks occurred. As this was embarrassing in the extreme he applied for relief. The duration of the swelling in these cases varies from a few hours to many days, exceptionally months. In this instance it lasted a few days, and gradually disappeared. There was no itching, but soreness was complained of, probably due to extreme stretching of the part. Treatment: He was told to limit his menu, especially as to proteids (meat, milk, eggs) and to go on a diet largely consisting of vegetables and considerable amounts of sugar, and fruits rich in sugar, with the added advice to masticate these carbohydrates most thoroughly. If after a time the affection tended to recur, to return to a strict non-proteid diet for a few days and to see that the bowels were opened freely. The patient's weight was to be watched, but unless the loss was considerable no attention was to be paid to the scales. He was questioned about previous attacks of indigestion and told to find out for himself, if possible, what best agreed with him and to eliminate any and all foodstuff that did not agree. Pure water was to be taken between meals and a capsule of salol and castor oil was ordered every five hours. He was to report at once if a recurrence took place. He followed this regimen faithfully for six months without the reappearance of the disease.

Case 2.—Mrs. Z., thirty years old, housewife, mother of four children, weight 160 pounds, had been troubled with the common type of hives for the past four years. The lesions were unusually large for ordinary hives, and covered mostly the arms and legs. Seven months ago both the lips were involved, and she experienced difficulty in eating and talking; often the ear lobes were involved at the same time, causing great disfigurement. The patient had taken medicine of all descriptions. Some pelvic operation had also been performed with hope of gaining relief, but nothing seemed to do good until she was placed on a rather strict diet, and the constipation from which she suffered was partly overcome. Later on, sweet milk and vichy water, equal parts, were allowed, and finally we returned to a mixed general diet with meat and eggs entered sparingly into the meals. The prognosis of all the above types of urticaria will depend on the ability to discover or modify the etiologic factor. This patient lives in a neighboring Kentucky city and I saw her frequently. Since August 15, 1911, no circumscribed edema of the eyes, lips and ears have been seen. The condition affecting the arms and legs is less troublesome. For a local application I used an emulsion of hydrated oxide of magnesium (milk of magnesia).

Atypical Types.—One type in which hemorrhages into the wheals are seen is known as urticaria hemorrhagica, and another is that form of urticaria in which the lesions

become capped with a vesicle or bleb or in which the wheals themselves are displaced by blebs—urticaria bullosa. In these types the inflammatory action has been sufficiently great to give rise to excessive effusion, either serous or if more marked hemorrhagic, the types depending upon the inflammatory process. As both these forms are uncommon and rarely seen outside of our large institutions, we will not dwell on these anomalous conditions, further than to say the recognition of the bullous form is difficult, as we are likely to confuse it with pemphigus, dermatitis herpetiformis or bullous erythema. In the treatment, diet again plays the most important part. The use of calcium lactate is indicated in the hemorrhagic form. Mercury bichloride administered internally is useful in the bullous type.

Urticaria Pigmentosa.—Is an extremely rare affection of which the writer has had the opportunity to observe one case. Dr. Graham Little cites 154 cases which are most of the cases recorded in 1905. The condition is characterized by the development of wheals which are followed by a pigment deposit. The wheals subside and recur upon the same spots, and the pigmentation of the cutis results. The disease begins in the first few months of life as a rule. A very few cases have begun in adult life. Early we see the development of small reddish wheals, later upon the disappearance of the wheals there are left brownish-yellow pigmented stains. Its distribution is general. Itching is usually severe. The disease usually persists until the time of puberty, occasionally later. Cases are recorded in which recovery took place after one or two years. Diagnosis of this affection is confusing, especially if this disease persists after puberty, as in the case seen by the essayist. A hasty glance recalled the picture of a fading macular syphilide or one of a mild dermatitis resulting from copaiba, but a history and the presence of a persistent pigmented macular eruption associated with intense itching determined the diagnosis.

The above covers in a general way the subject of urticaria. Our cases of acute hives are generally quickly relieved by the ordinary methods. It is the recurring acute and papular forms that are hardest to understand and most difficult to treat. The writer has had more satisfactory results in the treatment of all types of urticaria since he has carefully studied the patient's diet and manner of living. This takes time and patience, but any disturbance of digestion and metabolism must be corrected. The old maxim, "What is one

man's meat is another's poison" applies here. The amount and kind of food ingested must be carefully taken into consideration.

The busy practitioner will be appalled at the suggestion that he study dietetics. The mass of literature on the subject is tremendous. He thinks of his old text-books, and the analyses of food in the back of his physiology and promptly passes up the subject. He may take up a "manual" of materia medica, kindly furnished by some enterprising drug house, turn to urticaria and write for one or several of the fifty or more drugs mentioned under that heading—with the result that the patient's torment continues. The subject can be greatly simplified by reading some recent text-book on food and dietetics and by the study of the diet cards of Dr. Franklin White.¹ Here he has cleverly worked out the fuel value of the daily food, giving the amount of carbohydrate, protein and fat in it, and expressed in household measures. True, even with this valuable guide there are many complex factors aside from quantity and composition, and limiting the protein intake, to make any definite conclusions, but a short experience will show beneficial effects in nearly every case where restriction of the nitrogenous food is ordered.

Proper external treatment is of utmost importance in curing cutaneous disease, but in this affection all that can be expected from the use of lotions and ointments is to relieve the annoying itching and burning and to prevent secondary infection from scratching. Recently, I have used empirically solutions of quinine, 3j to ʒiv, and also glyceritum acidi tannici locally for the itching with good results, and a solution of citrate of sodium, as suggested by Lohse,² for any secondary involvement should it occur. In closing the essayist hopes this contribution will emphasize once more the value of diet in skin disease, and especially in the treatment of hives.

Lead Colic:

After the relief of the severe pain of colic, the following has been recommended as an excellent formula for the purpose of eliminating the lead and stimulating the stomach:

Potassii Iodidi	grn. xli
Magnesii Sulphatis	ʒj
Tinct. Nucis Vomicae.....	ʒv
Aque Cinnamomi	ad. ʒviij

M. Sig.: Two tablespoonfuls night and early morning.

—The Prescription.

¹White. A simple diet card and its uses. Boston Med. and Surg. Jour., Oct. 12, 1911.

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF CHRONIC LARYNGITIS*

By Emil Mayer, M.D., of New York

As functional laryngitis is to be the subject of another part of this symposium, the differential diagnosis and treatment of organic laryngitis only is here presented. It is to be differentiated from affections of the larynx caused by the constitutional affections such as syphilis, tuberculosis, lupus auni scleroma; from the benign laryngeal growths, papilloma, mucocele, etc.; from malignant growths which so frequently involve the larynx; from prolapse of the ventricle; from lesions of the mucous membrane allied to affections of the skin as pemphigus, and from lesions caused by interference with the nerve supply of the larynx, the abductor and adductor paralyses.

It is not necessary here to go into detail of the differential diagnosis. The mere mention of the various ailments that may simulate chronic laryngitis is quite sufficient to indicate what we have to bear in mind and against which we have to guard in making our diagnosis.

There is always a preceding acute inflammation, although the interval between the acute and chronic conditions may be very short.

The treatment of this affection cannot be successful unless the etiologic factors are fully known. Of these first in line come the obstructive conditions of the nose, occasioning mouth breathing and preventing properly warmed air from entering the larynx.

Chronic catarrhal conditions of the nose and nasopharynx extend into the larynx by contiguity and produce a chronic laryngitis. Treatment must be vigorously applied to the nose and nasopharynx before amelioration of the laryngeal symptoms can occur.

One of the most frequent causes of laryngeal irritation and chronic inflammation is either the elongated uvula or its papillomatous tip. Simple as it may seem, it is surprising how frequently this condition is overlooked, as a single case in point may well illustrate.

A young woman, aged 20, came to me because of cough and constant clearing of the larynx, lasting for the past eighteen months, during which time she had been receiving treatment of all kinds of applications without benefit. I found the laryngeal mucosa very much engorged and by carefully elongating the uvula in depressing the tongue, found a long papillomatous tip which ordinarily curled up behind the uvula as it retracted on examination. Uvulotomy was followed by complete cessation of all the symptoms.

Hypertrophied lingual tonsils cause laryngeal irritation and require removal or galvanocautery applications before any direct treatment to the larynx.

Follicular pharyngitis may keep up a laryngeal irritation. For the rapid removal of these I have devised a curet.

Pressure in the auditory canal is another cause of laryngeal irritation. I have recorded a case of the cure of a constant cough and rasping by the removal of a plug of cotton which had been placed in the ear six months previous to the examination and forgotten.

Constitutional disturbances, digestive and cardiac, and pressure of new growths and enlarged glands are causative factors in producing chronic laryngitis, and the relief of those conditions, where possible, means ability to cure the laryngeal disturbances. Chronic laryngitis may be an occupational disease following irritation from gases or a dust-laden atmosphere, and in these the wearing of a respirator is a necessity as a preventive.

Alcoholics are especially susceptible, as also are males at the age of puberty. The use of tobacco is a causal factor and its continued use often retards a cure.

Sudden changes of temperature are most common causes of laryngitis.

Inflammatory conditions of the larynx occur from improper use of the voice in public speakers, actors and singers, and these are the patients who tax our capabilities to the utmost, for impairment of voice to them means a financial loss, often great. Their disturbances may range from a slight loss of tone in the upper register, which can only be noted by an expert, to a total loss of voice. These patients must be treated with the utmost care and firmness, as so much depends on their recovery, and harm may be done by over-zealous treatment. One should hesitate before performing any operation on the nose or throat of any patient of this class without most mature consideration.

It must be borne in mind that the singer has learned his art with the very pathologic condition that we have before us and its removal may disturb the equilibrium of his vocalization, and should the laryngitis still continue, the failure to return to normal will be ascribed to the operative interference.

The conditions here are usually local hypertrophies, such as the singer's nodes, which are limited to a characteristic region, namely, the junction of the anterior third with the posterior two-thirds of the vocal cords and occur as a result of friction.

**Jour. A. M. A.*, Sept. 27, 1913.

After the removal of any existing causal factor, our first order must be: Rest. The more complete, the better.

Local applications may be made of a spray of the tincture of chloride of iron, half a dram to the ounce of water. In the more chronic conditions the following solution is given:

Iodi	grn. viii
Potassii Iodidi	grn. xvi
Glycerini	
Aquæ	āā 3 lss

Zinc chloride and solution of alum, 30 grains to the ounce, are also used, applied locally. During the day medicated lozenges containing benzoic acid or krameria are beneficial. Steam inhalations, specially with the resinous substances such as are contained in the compound tincture of benzoin, are especially soothing and relieve much of the irritation, but far better results are obtained if the medicated steam is applied methodically and regularly, as may be done in well-equipped inhalatoria, and these should always be under the direction of a competent physician. When this is not obtainable, special inhalation apparatus may be obtained, and this form of treatment may be carried out under the physician's personal supervision.

There are two methods of inhaling; in the first the medicament is atomized to impalpable vapor by means of sterilized air in a cabinet, while in the second the inhalation is through a sterile mouth-piece or nose-piece.

The medicated steam, a mixture of compound tincture of benzoin, one in twenty, is inhaled at a temperature of from 140 to 170 F. for about fifteen minutes. This is followed by inhalations of oily substances without the aid of heat, either of the two following being used:

Camphoræ	3 i
Olei Picis Liq.	5 ii
Iodi	grn. xx
Creosoti	5 i
Mentholi	grn. xxx
Olei Sesami	3 iv
or	

a 5 per cent solution of the following:

Iodi	3 vi
Acidi Oleici	3 ii
Olei Paraffini Liq	3 iv
Olei Sesami	ad o i

The patient remains indoors for from fifteen to thirty minutes after each treatment. The use of tobacco is prohibited.

Faulty methods in vocalization should be corrected. Often a complete change of air and surroundings is advisable, and a few

days or longer at some seacoast resort under favorable weather conditions may be of great benefit.

Cold sponging of the upper part of the body, the wearing of proper clothing, regularity as to meals, regulation of the bowels should be part and parcel of the directions toward the cure and prevention of recurrence of chronic laryngitis.

40 East Forty-First Street.

ON THE EFFECT OF SCARLET RED IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER*

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and

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THE efficacy of any drug in the treatment of a special disease is at times most difficult to estimate, especially in those instances in which the disease has a tendency to heal of its own accord. It is therefore with some hesitation that we here advocate the employment of scarlet red in the treatment of certain cases of peptic ulcer; however, if it can be demonstrated that some cases of ulcer which have resisted other means of treatment have apparently healed under the influence of this dyestuff, it is believed that there is sufficient justification for giving the remedy a distinct place in the treatment of this affection. It must, however, be distinctly noted in advance that there has been no desire on our part, in advocating the use of this drug, to displace the time-honored rest-cure treatment of Leube or the more recent cure of Lenhartz, but simply to recommend its employment as a useful adjunct in the treatment.

We are greatly indebted to Dr. John Staige Davis, who, in his admirable work on "The Effect of Scarlet Red on Defects in the Mucous Membrane of the Stomach,"¹ first suggested the use of this drug in the treatment of ulcer of the stomach, and who proved its usefulness experimentally in animals. "It occurred to us," he says, "that possibly ulcers of the alimentary tract, especially ulcers of the stomach, might be benefited by the use of scarlet red, if it could be brought into contact with the ulcerated surface. There was no reason to believe that this dyestuff would not have a definite stimulating effect on the epithelial edges of these ulcers, as local applications of this substance to sluggish ulcers of comparable

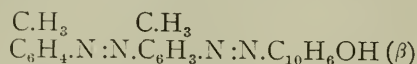
*Read before the American Therap. Soc. Monthly Cyclo-pedia, June, 1913.

¹Johns Hopkins Hospital Bulletin, Nov., 1912.

size on mucous membranes in other situations caused definite epithelial stimulation and rapid healing. All that is necessary for the healing of such an ulcer is for healthy mucous membrane to grow across its floor and remain intact, and it seemed possible that the mucous membrane of the ulcer edges might be stimulated by the scarlet red and thus accomplish the desired result. Proceeding on these premises it seemed wise to undertake some experimental work on animals before attempting to administer this substance to a patient suffering with gastric ulcer."

Davis calls attention to the following properties of this dyestuff: "Scientific name, Tolueneazotolueneazo-betanaphthol. Commercial names, Biebrich Scarlet R. Medicinal; Oil Scarlet; Red B. Oil Soluble Extra-concentrated; Ponceau 3 B.²

Method of Preparation.—It is made by a combination of amidoazotoluol and betanaphthol, and has the formula:—



Color.—It is a reddish-brown powder, which gives a scarlet-red color in oil solutions. It cakes about 175° C. and melts at 184° to 186° C., forming a dark-bronze, shiny mass. At about 260° C., decomposition takes place and heavy brown fumes are emitted.

Taste.—The powder and also the oil solution are tasteless.

Reaction.—A 1 per cent solution in neutral oil is neutral to litmus.

Solubilities.—It is insoluble in water and urine, even after boiling. It is soluble in alcohol, ether, and chloroform, olive oil, fats, fatty oils, turpentine, warmed petrolatum, and paraffin. One gram of finely divided powder, heated gradually in 100 Cc. of olive oil to 200° C., remained in solution for two days or more at ordinary room temperature. Approximately a 2 per cent solution can be made, but the scarlet red does not stay in solution for any length of time, and tends to precipitate at once on cooling.

A reaction which will specifically identify this dyestuff has not yet been discovered. There are, however, a number of color reactions with various acids, which we will not consider at this time.

The gastric juice, experimentally, has no effect on the scarlet red.

X-ray Findings.—This material casts no shadow on an X-ray plate.

Bactericidal Properties.—A luxuriant growth of *Bacillus coli* and also of *Staphylococcus aureus* was obtained in twenty-four hours from both agar and bouillon cultures intimately mixed with 1 per cent oil solution of scarlet red. This seems to show that this substance has little, if any, bactericidal property."

Davis's conclusions as to the effect of this substance are as follows:—

"The dyestuff used in this series of experiments is not toxic and apparently has no deleterious effect on either dogs or rabbits. When given by the mouth it is a fat-selecting vital stain. In the course of months the stain is gradually eliminated. Subcutaneous and intraperitoneal injections stain only the fat in actual contact with the scarlet-red oil solution. It is difficult to say from these operative experiments whether the scarlet red has, or has not, a definite stimulating action on the epithelium of defects in the gastric mucosa. However, the scarlet-red oil solution caused a more rapid and better developed growth of epithelium in the group in which it was used than occurred in the duplicate group where plain olive oil was used. The results with dry powder were not so favorable experimentally, but this may have been due to the fact that the material was not continuously in contact with the denuded area. We were unable to determine the relative effect of the scarlet red on chronic gastric ulcers, as it was impossible to produce chronic ulcers in dogs with controls of exactly the same size. Our experiments are suggestive, and, as this dyestuff may be safely administered, we feel that it is worthy of a thorough clinical trial."

Scarlet red may be administered in doses of from 15 to 20 grains, three or four times daily, without producing the slightest toxic effect, *provided a pure preparation be employed* (Biebrich). It is best given in 7½-grain konseals, 2 of which may be taken three or four times daily before meals. It may, however, be administered in much larger doses, and only after very large continuous doses can the odor of camphor be detected in the urine. Not the slightest toxic effect of this drug could be observed in any instance, during its employment in over one hundred patients.

In this study we have selected from our records 37 cases of ulcer in which scarlet red was employed in the course of treatment. In the largest proportion of these cases a most beneficial effect seems to have been obtained from its use. We have not included in this report those cases in which the Leube or Lenhartz cure had been un-

²"Organic Coloring Matters," Schultz and Julius (Green), 1904, p. 108, No. 150.

dertaken and which have made uneventful recoveries, inasmuch as most of such cases would have recovered without the help of any drug whatever; but have included only those in which the result of the rest cure was unsatisfactory, and have added the ambulatory cases of ulcer which remained unbenefited by the usual treatment. Of the cases in which this remedy was employed, 18 were treated by the Leube rest cure, 11 by the Lenhartz treatment, and 8 were ambulatory cases. Of those treated by the Leube cure, 14, or 37.8 per cent were cured; 2, or 5.4 per cent, were relieved, and 2, or 5.4 per cent were not relieved. Of those treated by the Lenhartz method 6, or 16.2 per cent, were cured; 2, or 5.4 per cent, were relieved, and 3, or 8 per cent, were not relieved. Of those given ambulatory treatment, 2, or 5.4 per cent, were cured; 3, or 8 per cent, were relieved, and 3, or 8 per cent, were not cured. When we take into consideration the fact that all of these cases

patient was given a thorough Lenhartz treatment, extending over five weeks; he was relieved during the course of treatment, but as soon as he was placed on solid food the pain began anew. Scarlet red was administered in 15-grain doses three times daily; the pain was relieved after a few doses, and the patient was able to be about in a few days. He continued this remedy for four weeks, and has remained well during the past six months.

Another interesting result of this treatment is illustrated by *Case No. 17, P. E.*, who was affected with gastric ulcer for a period of eight years, with periods of relief of from three to six months. He had been suffering from the present attack for four and one-half years. He had great pain after eating, and was forced to live on liquid and semisolid food on account of the excessive pain, nausea, and vomiting. He was unable to undertake the rest-cure treatment, and was given 15 grains of scarlet red three times daily. After three weeks he was able to partake of light solid food, and after four weeks was able to discontinue the remedy. After eight months he has had no return of his present disorder.

The results of treatment in the 37 cases in which scarlet red was utilized are illus-

No.	Name.	Age.	Sex.	Diagnosis.	Form of treatment.	Dosage per diem.	Duration of treatment in weeks.	Result.
1	S. J.	34	F.	Gastric	Leube	40	4	Cured.
2	R. E.	61	M.	Gastric	Lenhartz	60	5	Relieved.
3	J. S.	33	M.	Duodenal	Leube	45	3	Cured.
4	P. S.	30	M.	Duodenal	Ambulatory	45	4	Relieved.
5	S. M.	38	M.	Gastric	Leube	60	8	Cured.
6	H. C.	45	F.	Duodenal	Leube	45	7	Cured.
7	S. D.	31	M.	Duodenal	Ambulatory	50	4	Relieved.
8	J. R.	45	F.	Gastric	Ambulatory	45	3	Not relieved.
9	S. T.	33	M.	Duodenal	Lenhartz	60	4	Cured.
10	R. T.	40	M.	Gastric	Leube	45	4	Cured.
11	W. R.	42	M.	Gastric	Leube	45	5	Relieved.
12	D. J.	39	M.	Duodenal	Leube	45	6	Not relieved.
13	S. W.	49	M.	Duodenal	Lenhartz	45	4	Cured.
14	A. H.	42	F.	Duodenal	Leube	60	8	Cured.
15	P. J.	41	F.	Gastric	Leube	45	5	Cured.
16	K. D.	51	M.	Duodenal	Leube	45	6	Cured.
17	P. E.	24	M.	Gastric	Ambulatory	45	4	Cured.
18	B. S.	42	M.	Gastric	Leube	60	6	Cured.
19	A. M.	30	F.	Gastric	Lenhartz	45	3	Not relieved.
20	C. F.	37	M.	Duodenal	Ambulatory	40	4	Cured.
21	J. M.	25	F.	Duodenal	Lenhartz	60	5	Relieved.
22	L. M.	34	M.	Duodenal	Ambulatory	45	6	Not relieved.
23	D. M.	49	M.	Duodenal	Lenhartz	60	4	Cured.
24	D. R.	36	M.	Gastric	Leube	45	5	Cured.
25	S. D.	38	F.	Gastric	Leube	40	6	Not relieved.
26	R. C.	26	M.	Gastric	Lenhartz	60	4	Cured.
27	B. J.	38	M.	Gastric	Leube	45	5	Cured.
28	S. M.	65	F.	Duodenal	Lenhartz	45	6	Cured.
29	S. L.	42	F.	Duodenal	Lenhartz	60	4	Not relieved.
30	S. D.	45	M.	Gastric	Leube	40	5	Relieved.
31	W. P.	60	F.	Duodenal	Leube	40	8	Cured.
32	C. W.	65	M.	Gastric	Ambulatory	60	3	Not relieved.
33	S. M.	52	F.	Gastric	Ambulatory	45	4	Relieved.
34	B. H.	51	F.	Duodenal	Leube	45	5	Cured.
35	C. B.	31	M.	Duodenal	Lenhartz	45	2	Not relieved.
36	D. J.	39	M.	Duodenal	Leube	40	5	Cured.
37	P. K.	43	M.	Duodenal	Lenhartz	45	4	Cured.

resisted the usual treatment (that is, were treated by the usual methods first, and were not relieved until the scarlet red had been administered) the result is most gratifying.

Case No. 13, S. W., will illustrate this condition. The patient, a man aged 49 years, had been affected with a duodenal ulcer for a period of two years. He suffered with severe pain, appearing three hours after meals; the pain was relieved by food and by alkalis. All the other important symptoms of duodenal ulcer were present, *i.e.*, an epigastric and dorsal painful area, marked hyperacidity, and occult blood in the stools. The

trated in the accompanying table. In it are noted respectively, the location of the ulcer, the dose of scarlet red administered, the duration of treatment, and its effect. From the use of the remedy we believe we are justified in drawing the following conclusions:—

1. Scarlet red is a useful adjuvant in the treatment of peptic ulcer.

2. While it cannot replace the usual forms of treatment, when it is administered in

conjunction with them it frequently renders the cure more effective.

3. As a help in the treatment of ambulatory cases it is of great service, and its effect seems to be even more favorable than that obtained from bismuth.

4. Its use need not in any way interfere with the administration of other remedies, such as the alkalies or belladonna, when indicated, and, in fact, the effect of the combination is at times most beneficial.

ACUTE ANTERIOR POLIOMYELITIS*

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The Acute Stage—The treatment at the onset of the disease is practically the same given to any acute febrile attack, for very little, if anything, can be accomplished toward cutting short or modifying the actual progress of the anatomical lesion. The child must be kept closely in bed and as quiet as possible, given a milk diet, and saline laxatives to keep the bowels open, and must be afforded every opportunity to gain an abundance of restful sleep.

The weight of the bedclothes should be kept off the lower limbs for the reason that, if the nuclei of the extensor nerves are chiefly affected, any weight acting on the toes will accentuate and increase the effects of the present extensor paralysis. A cradle should be used for raising the bedclothes above the limbs. In this stage of the disease splints of leather or poroplastic may be used in cases in which the lower limbs are affected, for the purpose of keeping the foot at right angles to the leg, and if pain is a prominent symptom at this stage it may be treated with hot fomentations or by counter-irritation.

Along the spine a counter-irritation in mild form is of great benefit, and is best accomplished by a paste, one part mustard and three parts flour, applied as a poultice to the back, to be removed as soon as the skin is reddened, and after a while reapplied. For perhaps a week this continuous counter-irritation without the discomfort of a blister should be kept up; or a frequent dry-cupping may be applied along the spine. In cases in which the temperature runs above 101° F., sponging with a mixture of alcohol and water is often indicated.

It is of high importance during the febrile stage that the limb be kept thoroughly warm. This can best be effected by a light bandage of cotton-wool; or hot-water bot-

tles may be used, though with caution, for any resulting burns would be slow to heal owing to the existing vasomotor disturbance.

The Second Stage—With the passing of the acute stage and the subsidence of pain and the constitutional symptoms four chief aims in treatment are to be kept in view, namely (1), to ascertain as nearly as possible the exact extent of the damage done; (2) to anticipate and prevent as far as is humanly possible the advent of any definite deformity; (3) to maintain the nutrition and tone of the muscles of the limbs, especially the unaffected one; (4) to train, or it may be re-educate, the child in the use of the injured limb under its new conditions; for he should employ it in such a way as to obtain the maximum benefit from the action of unaffected or only partially paralyzed muscles, as well as to train them to take the place of those muscles that have become functionless, within physiologic possibilities, and this aim, of the four mentioned, is the most important, not only of itself but also because in its accomplishment the third aim will be most effectively promoted. There is no external stimulant that can be applied to a muscle for the purpose of maintaining its tone and nutrition that is comparable in value to a stimulant which reaches that muscle from the central nervous system by means of its own nerves.

It is not by any means always easy to determine satisfactorily the exact degree of permanent damage which will result from a given attack of anterior poliomyelitis. Following the period of acute febrile disturbance is an interval, succeeded by gradual improvement which endures for a variable length of time, and it may be six months before the exact extent of final paralysis can be ascertained. Nevertheless, in the majority of cases a very fair estimate may be made within a much shorter time by a careful examination of the electrical reactions of the muscles of the affected limb.

Early Precautions—In case there are signs of a coming deformity the child should be taught to use the affected member in such a way as to prevent the development of the trouble, and at night he should wear a suitable leather or poroplastic splint.

The Chronic Stage—With the subsidence of pain and acute symptoms massage should be given once or twice a day and passive movements at least three times a day with regularity, and the massage should be combined with such attempts at active movements as the patient is able to make. The massage should be not severe, but sufficient to stimulate the circulation in the limbs and

*Medical Brief, Oct., 1913.

promote the lymphatic and venous flow. The mother or nurse should be instructed how to accomplish this.

Mechanical devices may be employed for the purpose of inducing the child to use the weakened limb. The physician can devise a household gymnasium adapted to the individual case, and if the exercises can be made to seem like play so much the better.

Electricity—Though electricity sometimes is of value in these cases there is risk of overstimulation of the unaffected muscles which may tend to increase any deformity in the course of development. In those cases where the muscles react only to the constant current difficulty is likely to arise, but if the muscles react to the faradic current no harm ensues if the muscle is not overstimulated, and often good may result.

Each case is to be judged on its own merits. Many children strongly object to the employment of electricity on their bodies, some will bear a very strong faradic current, but may not tolerate a galvanic current of sufficient strength to produce muscular contraction, and in this case its application would be useless. Moreover, electricity seems to be devoid of any effect upon the course of the disease, having no influence over the lesion in the spinal cord, either in decreasing the hyperemia or increasing nutrition of the nerve-centers, and therefore applications of galvanism to the spine are thoroughly useless. Applications to the muscles direct, however, may be of service in two ways; first, by causing them to contract, thus affording them exercise when voluntary exercise is impossible; second, by promoting those chemical changes in the muscle which are necessary to growth and nutrition.

There will be found certain muscles in the paralyzed limb which will respond to faradism, these being the muscles that will entirely recover in due season. But their tone and strength should be maintained during the period of improvement by means of exercise either with the galvanic or the faradic current. As exercise of a healthy arm will improve the size of the biceps muscle, so a susceptible muscle may be increased in size by regular applications of faradism. An application of the faradic current to such weakened muscles as will respond to the influence will be of distinct benefit, given once or twice a day for ten minutes at a time.

But the greater number of paralyzed muscles do not respond to faradism, which is therefor valueless to them; but they will respond as a rule to the interrupted current, the positive pole being placed over the mus-

cle and the negative on the limb a short distance above. The interruption should be made by an electrode held in the hand and provided with a finger-key, each muscle to be thus treated every day for about three minutes, the finger making fifty to sixty interruptions to the minute. The strength of the current should be the least that will bring about contraction in the muscle. When interruptions of the current produce a prompt response the current should be alternated by reversing it rapidly by pole changes on the battery.

Not only is the application of electricity in this disease more painful than in health, but in the case of children there is the further difficulty of gaining the patient's confidence; and this must be done, for if he is frightened at the first application the following treatment will prove a continuous struggle. The course should be inaugurated by several applications of sponges and electrodes while there is no current passing, thus accustoming the child to the apparatus. Then a weak current may be used, to be increased in power day by day as the patient gains strength and confidence. Usually by the end of ten days the proper current-power may be given.

The attendant, whether mother or nurse, should be taught to give faradism or galvanism to the child in this way, so that at the end of a week the applications may be left entirely in her hands. These applications may be kept up for two or three years, if necessary, given once or twice a day. At the end of the first year spontaneous recovery will have reached its best, but exercise must be continued in order to develop the muscles.

If a child is able to move voluntarily and with some force any paralyzed muscle he should be encouraged to do so, this exercise being much better than that impelled by electricity. If there is a muscle upon which no effect is obtained during a year of massage, bathing and electricity its nerve-cells are entirely destroyed and further treatment would be useless. It will never recover.

Mechanical Aids—As many weak muscles do their work only when a limb is braced or assisted, the employment of mechanical aids plays an important part in the treatment of infantile paralysis in its chronic stage. A part of the functions of many muscles is to keep the joints in place, and this part may be supplied in a measure by properly adjusted braces, so that a child may use a muscle or move a joint which he could not do without them. Moreover, a result of paralysis in one group of muscles is to allow the joint to be bent by its oppo-

ment, or to yield to gravitation, and if a brace is not applied to correct this tendency a deformity will follow. There is in fact no disease in which orthopedic apparatuses are of more benefit than in infantile paralysis, and they should be employed early after the acute stage, though no stage is too late for the application of a brace.

Even when deformities have occurred we may employ tenotomy to straighten and adjust the joint, when the limb can be fixed by the brace in the proper position. Care must be taken to secure the right kind of a brace, for the ready-made affairs of the shops are often worse than none. An orthopedic surgeon should see that a special apparatus for the individual case is fitted by his directions. Of course in a growing child the brace must be kept adjusted to its changing proportions, which may require alterations in it every month.

Tenotomy.—The question of tenotomy will arise in many cases of deformity where there is a strong contracture of a fairly healthy muscle overcoming the weak paralyzed muscle. Though this operation will result in a replacement of the deformed limb to its natural position the joint must be held there by a brace, else the procedure will be of no permanent value; and in fact there are many cases in which tenotomy can be regarded only as a preliminary to the application of proper apparatus.

Other Apparatus.—In the treatment of infantile paralysis in the hand elastic bands are used to reinforce the weakened muscles, as for example: A dropped wrist or a paralysis of the extensors of one side of the wrist can be somewhat relieved by means of elastic bands attached to the finger-tips or to rings and to the elbow, running through a brace at the wrist. I must admit that such a device is cumbersome and of no great usefulness. There are, however, apparatuses especially applicable to spinal curvature of the paralytic kind, which are of real value; and in any case in which the body or back muscles are involved the child should begin at the outset to wear a brace in order to prevent the establishment of some form of curvature. A few successful procedures have been reported in cases where a portion of the tendons of certain healthy muscles have been attached to the tendons of paralyzed muscles about the ankles, knees, wrist and elbow, in order that the healthy muscles may be made to do the work of those that are paralyzed.

Educating the Paralyzed Muscles.—The training of the child in the proper use of the affected limb should be begun as soon as possible in the same way as, after the

surgical treatment of deformities which may result later, the patient has to be taught the proper use of the restored foot. It is in this latter procedure that the greatest hope probably lies in preventing or neutralizing the complicated deformities so often resulting from infantile paralysis. Of course, the process demands time and patience, and in some cases success may be impossible. But such training will very often meet with success if efficiently carried out. Even if the results are disappointing and surgical measures are finally found necessary the surgeon will have a more satisfactory limb to work upon, and moderately healthy muscles into which to transplant his tendons; whereas, without this training, the limb is often more or less hopelessly withered, due in part to the atrophy resulting from disuse as well as to the initial disease.

Hydrotherapy.—Warm baths aid the general circulation and the restoration of the cold and flabby limb, and it is good for the child to play for a half-hour twice a day in water kept at a temperature of 98° F., to be followed by a cooler sponging and brisk rubbing. Extra flannel clothing is also advisable for the protection of palsied limbs.

Medicinal Treatment.—In the early stage there may be some advantage in the use of ergot or potassium iodide, or moderate doses of quinine or of sodium salicylate. If the patient has convulsions or much pain he may be given moderate doses of potassium bromide or of a good anodyne, with or without codeine. Rest in a prone position in bed is better than a constant lying on the back. The general treatment of febrile conditions is to be given, with a light diet and laxatives.

When the acute stage has passed the body should be well nourished and the paralyzed limb kept warm. Potassium iodide may prove useful.

When the paralysis begins to subside spontaneously it is well to give strychnine arsenate or the sulphate in a full dosage three times a day, one-sixty-seventh to one-fiftieth of a grain for a child three years old, at intervals rather than continuously. My rule is to use it a week and stop three days. The condition of mechanical irritability of unparalyzed muscles, as determined by percussion with a hammer, is a good indication of the degree of effect produced by the strychnine, and this agent may be increased up to a definite point of augmentation of this irritation. We are not to expect, however, in infantile paralysis where the muscles are paralyzed, that

twitching of the limbs and stiffness of the back are usually indicative of strychnine effects.

The most important indication during the stage of regression is to preserve the nutrition and function of paralyzed muscles. Whether general tonics, like cod-liver oil, hypophosphites or arsenic, have any favorable effects must be left for the physician to determine in the individual case.

THE TREATMENT OF THREATENED ABORTION*

By W. C. Hess, M.D., of Cresco, Iowa

SUCCESS in the treatment of threatened abortion depends, largely, upon our ability to locate the predominating cause and to direct the treatment toward removing it.

There being so many different causes of the condition, necessitates widely different treatment in the cases as they appear in the general run of the doctor's practice.

When confronted with a pregnant woman, having colicky pains which come on at frequent intervals, a frequent desire to urinate, very little if any dilatation of the os (possibly admitting one finger), slight hemorrhage and headache, I give her from one-half to three-quarters grain of morphine hypodermically, which usually causes the pains to cease; then follow this in a few hours with from fifteen to twenty grains of sodium bromide in one dram of fluidextract of viburnum prunifolium every three or four hours, for several days. Absolute quiet and rest in bed are insisted upon, until there has been an entire cessation of pain and hemorrhage for four days.

This far, I think, the treatment of threatened abortion, as conducted by the medical profession in general, is largely the same, but the prevention of the recurrence of the original symptoms is the important part of the treatment. Here is where most of the mistakes are made, "mistakes of omission." I might say, for four out of every five patients are dismissed at this time, often only to return again at a future period; at the end of seven or twenty-eight days in my experience is a favorite time for the symptoms to recur. Therefore before dismissing the patient give her a thorough examination, striving to find the cause of the trouble.

If there is local irritation treat the cause of the irritation. Correct the acidity or alkalinity of the urine as the case may be; prohibit coitus; correct constipation with mild laxatives, cascara preferred, in the

smallest dose, given three times daily, that is necessary to move the bowels regularly.

Prophylactic measures during pregnancy might be mentioned, such as keeping the parts clean and healthy by the use of baths and gentle tepid (not hot) douches from a fountain syringe, with the bag elevated not more than two or three feet.

If the uterus is retroflexed, use the mildest means possible to correct the position, postural replacement, and if it fails to remain in proper position I use a small wool tampon just large enough to hold in this position for from twenty-four to thirty-six hours. This may be repeated every three or four days for from four to six treatments.

Up to the present time I have had no bad results from the local action of the tampon; but common sense and judgment are necessary in the use of the tampon in cases of threatened abortion.

As about fifty per cent of the cases of abortion occur at, or near, the third month, it is wise to use special caution at this time and have the woman kept quiet and, at the least sign of anything out of the ordinary, have her go to bed and remain quiet.

We often have women with increased sensitiveness to nerve stimulation, especially at the usual menstrual time. In these I find the use of suggestion, or a good plain talk, does them good.

Mechanical or thermic irritation must receive attention. Horseback riding, dancing, railroad journeys, straining, like lifting or reaching, running the sewing machine, etc., should be prohibited; also *hot* douches and, if douches are used at all, use tepid water, with the syringe bag hung low. Hot sitz baths and the use of the hot water bag should be absolutely prohibited.

Toxic irritation should be kept in mind, and the use of ergot, hydrastis, stypticin, and all of this class of drugs, if used at all, should be administered with great care. Personally I think they are contraindicated in threatened abortion. Diabetes and lead poisoning should be thought of and dealt with along general lines if present, not forgetting that the woman is pregnant. Pure fresh air is essential in this condition both day and night, keeping in mind that a pregnant woman has an excess of blood to aerate.

Anemia, if present, should be treated with organic preparations of iron, and during the pregnant state I find them easily taken.

Hyperpyrexia from any cause should be guarded against, and the proper use of cold water in the form of sponge bathing, or

*Prize paper, N. Y., Med. Jour., Oct. 4, 1913.

the cool pack, is better than any of the antipyretics.

Strumous women, suggestive of the tuberculous state, are usually anemic, and here I use the same treatment as in anemia, adding an extra element of nutrition, possibly some of the standard preparations of codliver oil, and advising plenty of outdoor life.

Syphilis, which I encounter very seldom in a country practice, demands the use of the iodides. Here let me state that, in women nearing the menopause, and in those with considerable sclerosis or hyperplasia of the uterus, and having threatened abortion, the use of five grain doses of potassium iodide three times a day seems to cause much improvement.

Bacterial and placental toxins may account for certain cases of threatened abortion. In chorea gravidarum, threatened abortion several days after recovery from measles (barring dead fetus), hyperemesis (where the effort at vomiting is very slight and with little if any straining), and when symptoms of eclampsia exist, treatment by elimination is indicated and, as a rule, should be followed by the use of proper tonics. I do not hesitate to give epsom salts and calomel in these cases, and often with marked benefit. A certain number will, nevertheless, go on to the stage of inevitable abortion and have to be treated as such. I have had several patients, about seventy-five per cent, go on to full term after a carefully given course of elimination.

Psychic and reflex nerve irritation, like fright, mental shock, nasal operations, extraction of teeth, etc., should be guarded against. Quiet environment and palliative remedies should be used in these cases.

The treatment of threatened abortion is not so much the proper remedy for the condition *per se*, as it is a careful study of the individual case, striving at all times to find the cause of the trouble and directing the treatment accordingly.

A large proportion of the cases of threatened abortion, spoken of by the profession as a whole, should be placed in the criminal abortion list; this would eliminate a large amount of the sepsis in the true threatened abortion statistics and lower the mortality to quite an extent.

In my experience after you have eliminated the criminal or instrumental abortions from the threatened abortion list, by following general lines of treatment, and at all times making good use of your judgment and common sense, you will have little cause for worry when it comes to treating threatened abortion.

PULMONARY SYPHILIS COMPLICATING PULMONARY TUBERCULOSIS: ITS DIAGNOSIS, TREATMENT AND PROGNOSIS*

By Frank Neall Robinson, M.D., of Monrovia, Cal.
Late Assistant Medical Director of the Pottenger Sanatorium

SINCE tuberculosis is the most widespread disease in the world, and syphilis is second only to it in frequency, there is nothing surprising in the fact that the two diseases are often associated in the same individual.

Too little attention has been paid this factor, not alone by the general practitioner, but by the phthisiotherapeutist, although Schnitzler, Fournier, Senator, Roberts, and others have often referred to the connection. S. Klein has emphasized the frequent combined occurrence of syphilis and tuberculosis, and points out the fact that about 41 per cent of his cases show signs of syphilis.

Spengler pointed out long ago that numerous cases of tuberculosis develop in a hereditary syphilitic constitution, and it stands to reason that the constitution injured by the syphilitic virus is certainly more predisposed to tuberculosis than others. When one considers the widespread prevalence of syphilis, both hereditary and acquired, which is much greater than is generally supposed, it seems a wonder that more work along this line has not been accomplished.

Clinical experience in tuberculosis therapy, prolonged through many years, points to the frequent occurrence of lung syphilis, although anatomical proof of this fact at autopsy is difficult to obtain. The post-mortem findings, in hereditary as well as acquired lung syphilis, usually consist of a "fleshy, hypertrophic" lung if the case is in early life (there exists also, of course, the "white pneumonia" of the fetus, which is excluded here) or of not too long a standing in the adult. Later this picture is modified and one sees sclerotic changes analogous to cirrhosis of the liver, with "induration" of tissue and in some cases gumma. The bronchi will be found dilated through the indurated area, with occasional bronchiectatic cavities.

Symptoms.—Where there is a frank history of syphilis complicating pulmonary tuberculosis, it is a comparatively easy matter to keep the former in abeyance,—excepting in certain stages of the two infections,—and ultimately to bring both diseases under control. But where an innocent infection has taken place, or hereditary taint accompanies the tuberculous infection, and the patient

*Monthly Cyclopedica, June, 1913.

can give no clear history of an infection with syphilis, upon what are we to base our diagnosis?

Certain symptoms of the objective variety occur which can at once place the physician on his guard and warn him that he has a dual infection of tuberculosis and syphilis to deal with.

First among these is the marked shortness of breath, not alone complained of, but noticeable in a case of pulmonary tuberculosis that has been only of short duration.

Secondly, there may be a primary affection of the larynx. This condition is generally complained of as having appeared first with hoarseness, and the picture is that of syphilis, and not of tuberculosis, upon inspection with the laryngoscope and reflected light.

Thirdly, these cases all show a marked increase in the bronchial symptoms. Large quantities of sputum, seldom less than 50 Cc. in twenty-four hours, are expectorated, the material being mucous or slightly mucopurulent.

Any of these symptoms or a combination of them, occurring in a case of pulmonary tuberculosis, should at once make the physician suspicious and lead him to examine for certain auscultatory sounds for purposes of confirmation.

Physical Examination.—With the patient stripped, and upon auscultation, a characteristic sound can be heard, especially above the “fleshy, hypertrophic” lung. It is a “rustling” murmur, first written of by C. Spengler, of Davos, Switzerland, and is audible at the usual site of lung syphilis, viz., over the junction of the middle and lower lobes, much more frequently than over the lower lobe. To describe it more precisely, it is an interrupted sound like “running water” or “waterfalls” in the distance, and is heard at the end of inspiration and the beginning of expiration. Another adventitious sound which is also characteristic is the so-called bronchial “burr” or “snoring” heard over the bronchi. But the most striking feature is the large extent of pulmonary involvement found on physical examination, and the otherwise seemingly excellent state of nutrition and healthy appearance of the patient.

Microscopic Examination of the Sputum.—Upon examination of the sputum microscopically in a stained specimen, one is struck by the small number of tubercle bacilli, and occasionally non-motile spirilla can be seen. Upon staining the leucocytes in the sputum, there is found a great disproportion between the number of the polynuclear and that of mononuclear cells, there

being a relatively high percentage of the polynuclear variety.

Wassermann Reaction.—If any doubt remains after the physical and microscopic examinations, recourse can be had to the Wassermann reaction.

Treatment.—With regard to the treatment of pulmonary syphilis complicating pulmonary tuberculosis, the fact must be emphasized that it is precisely under these circumstances that an energetic mercurial treatment is absolutely contraindicated. Mercury, if used at all, should be limited to mild inunctions, and even then administered only at intervals. Mercurial medication is badly tolerated by the tuberculous syphilitic, in the first two stages of syphilis especially. Iodine is indicated above all, and it is here that we see it do the most good in the shortest time.

It is most natural to expect that the happy results will be shown first in those cases that are of short duration, while in long-standing (cirrhotic) cases they will be slower in appearing.

My preference, in the treatment of these cases, is for the official tincture of iodine, given in a wineglassful of milk, instead of the iodide of potassium or sodium, because it is not so rapidly eliminated and seldom causes iodism or gastric disturbances. The dose varies with the individual, and is from 2 to 5 drops three times daily, up to 10 or 20 drops.

Until recently I had avoided the use of salvarsan in lung syphilis complicating lung tuberculosis, not knowing what effect the drug would have on the latter affection; but lately I had a case of “apparent cure” of the tuberculous condition, but which still had a slight cough and expectoration that iodine did not entirely relieve. This case showed a marked (+ + +) Wassermann reaction; 0.4 gram of salvarsan was given intravenously with the most happy results, both cough and secretion entirely disappearing.

Another of my cases, actively tuberculous, became infected with syphilis (initial lesion). Realizing the extreme danger, I gave 0.6 gram of salvarsan intramuscularly, with rapid clearing of the chancre (five days) and no deleterious effects as regards the tuberculous infection.

Prognosis.—It has long been known to those working in pulmonary tuberculosis that infection with tubercle bacilli in a syphilitic bespeaks a bad prognosis, and *vice versa*, that a syphilitic infection implanted on pulmonary tuberculosis hastens the course of the latter. These conditions are modified, however, according to the stage

of the first infection in which the second infection takes place. When tuberculosis attacks a syphilitic subject in the primary and secondary periods the prognosis is very grave, but in the tertiary period it is somewhat better; the mildness in this stage is due to the tendency to cirrhosis in the lung more than to the exhaustion of the syphilitic virus.

Why does such a grave type of tuberculosis develop in the presence of a florid secondary syphilis? This can only be explained by the fact that the explosion of syphilis in the blood deprives the latter of its organic defensive properties, so that a natural barrier to the extension of the second infectious process is removed.

When syphilis attacks a tuberculous subject, precisely the converse is found to be the case, the influence of the secondary infection depending here likewise upon the stage of the tuberculosis. In the so-called "pretuberculous" stage, and in patients of the first stage whose general condition is good, the prognosis is generally fair, but in cases whose condition has been undermined by the primary infection the prognosis is uniformly bad.

MENORRHAGIA AND METRORRHAGIA— SUGGESTIONS AS TO TREATMENT AND REMARKS ON RECENT CLAIMS FOR RADIO-THERAPY*

By Walter B. Chase, M.D., of Brooklyn, N. Y.

As preliminary to this discussion, it is assumed that every woman has a menstrual habit, peculiar to herself, both as to the quantity of blood lost and the time intervening between its re-occurrence. This phenomenon is usually rhythmical, but within certain limitations, some variation may occur without passing from the physiologic to the pathologic. By these standards she must be judged.

It is not within scope of this paper to enter upon a differentiation between menstrual and normal blood, nor to discuss the technical or clinical differences between metrorrhagia or menorrhagia. It is also assumed for purposes of diagnosis and treatment that these subjects have received due consideration, and that accidental or co-existing causes for debility and anemia have been given due consideration. In particular, differentiation must be made from the direct anemia due to uterine bleeding, and that arising from other co-existing causes. Again it must be clearly recognized that varying degrees of resistance from loss

of blood, either acute or chronic, explain the reason why the health of one woman suffers more quickly than another, and why convalescence is more rapid in one than another. In other words, no woman is to be judged by comparison with any other woman, but by her own individual standard. With such clearly defined notions, the individual case should be studied whereby tenable and safe deductions can be formulated.

Where the 28 day type of menstruation is constitutionally established, variation from such a standard, save for pregnancy, requires careful study. When distinctively due to shock or emotional causes it is not often a matter of moment and recovery is usually spontaneous. The same rule cannot be employed with most other variations from the individual type. It may be stated as a general principle that progressive shortening of the normal menstrual type from 28 days to a shorter period, is of sufficient importance to require investigation, and in particular when the menstrual loss increases in amount. Again those irregularities in which the inter-menstrual period is lengthened, or in which one extreme of fluctuation follows each other, both as to time and quantity, are entitled to thorough differentiation.

No effort will be made to discuss all forms and features of uterine hemorrhage, as it would be outside the scope of this paper. For this reason the hemorrhages due to miscarriage and at term have not been considered but incidentally.

I shall not encroach upon your time to depict in detail the symptoms dependent upon uterine bleeding, which produce varying degrees of temporary impairment or that leading to confirmed invalidism. The usual pallor, muscular weakness, lack of easy mental application, nervousness often associated with irregular cardiac manifestations, sleeplessness and final exhaustion, complete the picture which is too frequently witnessed and too indelibly stamped on our minds to require repetition. Its approach may be slow or rapid, its history fluctuating, its outcome dependent on wise management and the individual resistance of the patient.

Among the etiologic factors having an anatomic pathologic basis are uterine myoma, degenerative chronic endometritis, peri-uterine inflammation of septic origin, and those incident to miscarriage and subinvolution after term, uterine displacements and varying pelvic adhesions. Those classified under the head of systemic origin, include purpura, malaria, nephritis, those dependent on absence of normal plasticity

*Read before the Med. Soc. of the State of N. Y.—N. Y. State Jour. of Med., Sept., 1913.

of the blood, general arteriosclerosis and high blood pressure from varying causes, and from the exhausting influence of acute and chronic illness. Yet another class, of reflex origin, is seen at puberty, local shock, and those bleedings incident to powerful emotion. The proper management of these cases, both acute and chronic, is hygienic, medical and surgical. The hygienic comes first in importance and is imperative during the entire period of treatment. First efforts should be directed to the removal of all known predisposing or exciting causes, a regular wholesome habit of life, including proper food, exercise, diversion and rest, with as much exercise in the open air as is admissible, and living and sleeping, when indoors, in well ventilated apartments. The diet should be carefully guarded and a properly balanced ration enter into daily menu, avoidance of much tea and coffee, which may be excluded all together, and the use of pure water must be insisted upon. Caution must be continuously exercised against excessive fatigue incidental to physical exercise. The magic of change so often seen by removal from the lowland and seashore to the interior at a greater altitude, and *vice versa* must not be forgotten or neglected. Such want of appreciation deprives many patients of a remedy of great usefulness.

Medical treatment of these cases resolves itself into the employment of those measures which limit uterine bleeding, and restoration from the debility incident to its loss. Absolute bodily rest in the horizontal position with the foot of the bed elevated must be enforced in the presence of serious hemorrhage. Everything which contributes to healthy nutrition, secretion and excretion, must be under careful scrutiny, so that balance of normal function is maintained. In chronic cases, alternate rest and gentle exercise will be dictated by the varying exigencies of the situation.

The drugs are not numerous which exercise a controlling influence on these conditions. Constipation must be overcome by diet as far as practicable, aloes and all vegetable cathartics are hurtful—mild salines, phenolphthalein and olive oil are preferable. Phthalate of cotarnin, opium, hydrastin and ergot stand out as most useful remedies. Those articles of the *materia medica* which exercise a controlling influence increasing or diminishing blood pressure have a well-defined, but limited field of usefulness. Cotarnin, known as stypticin, has demonstrated its adaptability in varying forms of hemorrhages both organic and symptomatic. The claim for its efficacy

made by different observers, appears in all kinds of hemorrhage, irrespective of fixed anatomic and pathologic lesions, those due to inflammations and resulting degenerations of the uterine mucous membrane, those attending abortion, in myoma, in bleeding from cancer of the uterus, and from disease of the uterine appendages. Apparently its efficacy is not dependent on its power of varying to any perceptible degree the blood pressure, hence its wide adaptability. The dose is from $\frac{1}{2}$ to one grain or more once in four or six hours. Ergot in selected cases has valuable hemostatic properties, but it must be used with discrimination in myoma, and its influence upon the vasomotor system remembered. An old but almost forgotten remedy which has peculiar though limited sphere of usefulness is opium; to be administered with best results an assayed product must be employed or morphin used hypodermically. When other remedies fail it may become the sheet anchor of the patient. When these hemorrhages are associated with nervous perturbation and prostration, its temporary use will often tide the patient over a troublesome crisis, but for a continuous use it is not admissible, save in hopeless cases, or those which are inoperable, or if operable, when surgical interference is refused.

Medical treatment for restoring the blood dyscrasias, and stimulating the vital powers are of great importance. Organic iron in certain cases is very useful, in others inert, and in others injurious. It must be tested in the individual case to determine its adaptability. Diminished coagulability of the blood following its profuse loss is often a matter of grave import. The administration of calcium salts is indicated, if the coagulation time is diminished or it may be corrected by normal human or horse serum used by intravenous injection. Drugs which act as vasomotor constrictions, if used at all, must be administered with great caution. Any introduction of normal salt solution should not be ventured upon in the presence of uterine hemorrhage intravenously during active bleeding; the only exception being of an overwhelming loss of the circulating media.

The claim of remarkable efficiency of pulverized aluminum in arresting the hemorrhage dependent on gastric ulcer, might on theoretical grounds be applied to uterine hemorrhages dependent on detached placenta, or other local intra-uterine bleeding from open blood vessels.

Arsenic, if tolerated, is often effective. In cases where there is high nervous tension and reflex excitability, the bromides—par-

ticularly strontium—is of great value, and may be advantageously combined with valerian or asafoetida—remedies too often neglected.

Surgical treatment is of the greatest importance in many cases, and too often resorted to too late when it should have been the first remedy employed. The whole group of myomas come under this head. It is not so much their size as their location which demands interference; though in no case should they be allowed to attain any considerable proportions. The variety most productive of hemorrhages is the submucous. To temporize with this class is worse than folly, and delay may be fatal. Early hysterectomy should be resorted to before the state of exhaustion supervenes, save in cases where enucleation is indicated. Wisely done the mortality is small. Myomectomy in circumscribed subperitoneal myomas has a limited field of usefulness. The degenerative changes of the endometrium from varying causes requires early curettage, sometimes repeated. Hemorrhages persistent in appearance—following labor or miscarriage associated with subinvolution, require careful management. Uterine displacements, particularly retrodisplacements, require correction, and the mischievous influences of adhesive lesions of the uterus and adnexa must not be neglected; while salpingitis is a fruitful cause of troublesome hemorrhages. Uterine polypi, undiscovered usually because unlooked for, have played an important role in the factors which make for invalidism. Recently I operated upon a case of fibroid polypus, the size of a hen's egg, which had been extruded through the cervix, in which the exhaustion of the patient nearly proved fatal. Convalescence quickly followed. Tamponade in uterine hemorrhages has its uses. In sudden emergencies, intra-uterine injections of hot sterilized vinegar, found in almost every home, proves of signal value. When the uterus is not greatly enlarged, with normal mobility, the pushing it up as far as possible and retaining it there by tamponade of the vagina, produces a flexion of blood vessels supplying this organ and acts as a powerful hemostatic. Experience demonstrates that many of the intractable hemorrhages are amenable to surgical interference only, and from this cause springs most of the avoidable cases of chronic invalidism which should never have appeared. In the ulceration attending malignant disease of the cervix, the thermocautery repeated as often as indicated, is a palliative remedy of conspicuous and unequalled value. As local styptics, dilute acetic acid and acetone, are

among the best. Followed by persistent use of radium this treatment combined or alternated, accomplishes results unapproached by any other medical or surgical treatment, with which I am familiar. Failure to rightfully apply radium I am persuaded is responsible for many of these failures. To secure the best results, it should be used on alternate days from fifteen minutes to six or twelve hours, according to its degree of radio-activity. Disappearance of hemorrhage, healing more or less complete, subsidence of cachexia, and return to more normal conditions of health have attended their combined or alternate use. I have not employed radium in non-malignant hemorrhages, but information is not wanting to its efficacy.

No time is so opportune for treatment as in the incipency of uterine hemorrhage. Appearing at or near the climacteric it is often ignored with the assurance of the medical advisor that it is only the change of life, and that nature is competent to a safe termination, or the case is declared inoperable and with this assurance, further remedial measures are abandoned. The role which uterine cancer plays in cases of metrorrhagia is worthy of notice, as related to its great frequency. A known fact disclosed by the last census shows that one woman in every fourteen dies of cancer, and above the age of 45 the ratio is one to nine. It therefore follows that the possibilities are large that in a given case over 35 years the disease is malignant.

An infrequent and puzzling form of uterine hemorrhage is found in deciduomaligna. When its presence is established by laboratory diagnosis prompt hysterectomy is indicated. One other cause of menorrhagia is arteriosclerosis of the uterus. At the best its diagnosis is difficult and that by exclusion. During the present year Dr. Victor A. Robertson reported to the Brooklyn Gynecological Society its presence in an unmarried woman near the menopause. The laboratory findings were full and conclusive. The patient recovered.

Radical change in the treatment of hemorrhages dependent on myomata is seeking to replace present method. In Germany and at other continental clinics the treatment of these persistent hemorrhages due to myomata and those in which pathologic conditions are lacking or are not pronounced, remarkable curative results are claimed to attend the use of the X-ray.

A work by Gauss and Lembecke: "Roentgentiefentherapie" (Deep X-ray-therapy). Its theoretical principles and its clinical results. Berlin & Vienna, 1912.

The book gives an account of the work with the X-ray on myomata, large and small, myomatous slightly enlarged hard uteri, and metropathia hemorrhagica, in which no pathological findings were discoverable with the curette, and two or three suspicious carcinoma like conditions during the period of several years, with account of 205 cases treated. The increase of deep radiotherapy, by separating the soft from the hard rays leads to greater efficacy and safety. With proper filtration the decrease in the injury to the skin goes hand in hand with its therapeutic influence on deeper structures. The Roentgen therapy, formerly primitive, now built up in detail, is placed in competition with the operative treatment in cases of myoma and metropathia. Patients whose strength has been much reduced by repeated and continued hemorrhages are especially adapted to this treatment, and by it the mortality of the myoma operation is greatly reduced. Operation requires 6 to 7 weeks to restore to sufficient health and strength to go back to work. Roentgen therapy requires 8 weeks lapse of time while being treated, but does not keep patient from work on days between treatments—when strongest operatives and filters are used the reactions before previously noticed are not seen. Emphasis is given to the fact that diagnosis requires complex rays—therapy homogeneous rays. The end results with intensive therapy—appeared oftener and more quietly, and were more lasting, i. e., among the 102 patients treated in the last year and a half by this method there were no failures. The time consumed by the old method without filter averaged five treatments in eleven weeks (with aluminium filter 3 sittings in six weeks). Shrinkage of the myoma, much doubted by many, was so obvious, that not only the physician but the patient observed it. Out of 36 myomas examined 99 months after treatment, 20 had disappeared.

The general feelings of the patient suffered little during the intensive therapy. One can hardly speak of an inordinate demand on her strength; many patients read, others often go to sleep during the treatment. (I have repeatedly witnessed this sedative influence from which the patient irresistibly went to sleep and awoke refreshed.) Reaction from this treatment (Katzjerjammer) consists when present of headache, backache or nausea; and is most apparent in large doses. At the worst it is not comparable with the painful symptoms accompanying operation. Symptoms of the menopause which indicate approach of the

cure are less persistent than after operation. The crowning superiority of intensive therapy is an alleged smooth convalescence, obvious to the patient and the attendant. It will be noticed that in hysterectomy for myomas the cure is dependent on the removal of diseased structure—by the Roentgen therapy the pathologic bleeding is overcome, sometimes attended with diminution of the myomatous growth, but not necessarily dependent on its disappearance.

Werner regards the action of the X-ray as an influence on the chemistry of the body cell. He expresses the belief that its chief attack will probably be the ovaries though their exact location may not be known.

There can be no question of the intensive influence of the X-ray on the function of the ovary, and if carried beyond a certain point results in sterility. My associate, Dr. Shoop, reports treating a case of metrorrhagia near the menopause in which 19 settings of an average of 22 minutes each, menstruation disappeared. Analogous to this is the well recognized influence on the male whereby raying the testes induces sterility.

The potency of Roentgen therapy as seen by its usefulness when wisely applied seems to promise valuable therapeutic results. Those methods whereby the X-ray has been robbed of its deleterious influences arises from separation of its hard and soft qualities, with accurate knowledge of their useful and hurtful qualities, have been accomplished by improved tubes and careful filtration of which aluminum and leather are of conspicuous value. How much influence this will have on American practice remains to be seen.

There is another feature of the Frieberg clinic to which I decree to allude briefly, viz., the cross fire principle. The tube is placed on the right and left side of the abdomen at an appropriate oblique angle, also through the vagina and ischiotic foramen before which the ovary often lies. The skin of the abdomen is divided into fields so that the direction of the ray will reach both the ovary and the tumor itself; and the secondary rays as shown may act on the ovaries.

I desire to express my obligation and to express my appreciation to the monographic review from "Surgery, Gynecology and Obstetrics," from which I have quoted freely, and to the translation of the text from Gauss and Lembecke by Dr. Fred J. Shoop, and to his painstaking observation which seem confirmatory of the teachings of "Roentgentiefentherapie."

In conclusion I beg to say that in this brief review I have endeavored to give the

views of some German authorities a fair and unprejudiced consideration and while I never was an enthusiast on electrical-therapy, I am convinced by these statements and some personal experience and observations it is worthy of trial, but whether it will supersede hysterectomy, the mortality of which is small, time and experience alone can determine.

TREATMENT OF LARYNGEAL TUBERCULOSIS

F. L. Dennis, of Colorado Springs, Colo., thinks that consumptives are not as a rule systematically examined for laryngeal involvement early enough or often enough, even in sanatoriums. Primary laryngeal tuberculosis is an exceedingly rare disease, and not every hoarseness or even laryngitis in a consumptive is necessarily tuberculous. A patient may also have the disease and not be hoarse, as in the case of a slight ulcer in a part not directly concerned in speech. Pallor of the mucosa, unless localized in the throat, has no significance. The important diagnostic sign is a thin line of mucopus in the posterior commissure and over the top of interarytenoid region. Another is redness of one cord, the other being normal, which is almost diagnostic, and he has also noticed a slight infiltration of the epiglottis, which he has suspected being tuberculous, though it has not always developed characteristically. A consumptive may have a simple catarrhal laryngitis, but every affection of this region is suspicious and should be isolated. Malignant growths may confuse the diagnosis and here a tuberculin test may be useful. Dennis believes firmly in the value of treatment in tuberculous laryngitis. The treatment of the lung disease is of first importance; next comes rest and avoidance of irritation by coughing, talking, etc. Pain in swallowing should be relieved, as the patient's nutrition is most important, and he will not take enough food if it is with agony in taking. Local and operative treatment may be demanded. Dennis has himself had best results from local applications of liquor formaldehyde in infiltrations, strength 3 to 10 per cent thoroughly rubbed in, and trichloroacetic acid for ulcerations applied in saturated solution at intervals of from seven to ten days. Both are most useful in non-surgical cases of active tuberculosis with high fever and extensive involvement of the larynx, or in patients who cannot endure the idea of "cutting." Dennis believes in surgical treatment, though not for all cases. In patients showing a fair resistance to the disease, a good outcome may be hoped for.

Isolated tuberculomas or vegetations, moderate infiltrations or ulcerations, especially in early cases, are particularly responsive to the curet, the laryngeal punch and the cautery. The cautery point is of much service in massive infiltrations of the false cords, when the double curet might be unsafe. Even in far advanced cases surgery has a place. Dennis concludes as follows: "1. Sufferers from tuberculosis should have their throats examined early and often, and persistent, vigorous treatment should be instituted at the beginning of trouble in the larynx. 2. Proper attention to the general condition is one of the prime essentials. 3. Surgical intervention in appropriate cases offers by far the best prospect of permanent relief, and not infrequently is of much value as a palliative measure."—*Jour. A. M. A.*, Sept. 27, 1913.

FIBROLYSIN IN CHRONIC PNEUMONIA

According to Brenner, fibrolysin injections are strongly indicated in cases of pneumonia where resolution is delayed and where the evil effects of a persistent consolidation become manifest. In one case published, asymmetry of the thorax had already set in and the dullness and bronchial breathing persisted despite all treatment. One day after the first injection of fibrolysin the dullness of the affected area began to clear up and the cough and expectoration reappeared. After the second injection, there was rapid resolution of the affected area.—*Muench. Med. Woch.*, 1913, No. 28.

INFLUENCE OF CALCIUM SALTS

R. Emmerich and O. Loew lay a good deal of stress upon the importance of lime salts in the finer mechanism of both animal and plant life. It seems that lime is essential particularly for the proper function of the cell nuclei and where the lime is removed by such salts as potassium oxalate and sodium fluoride, cell death will soon follow. Clinically, the lime salts will greatly aid digestion and for this purpose 1 gram calcium chloride may be given three times a day with the meals. Animal experiments show that very large doses are well tolerated. The salt is also excellent as a tonic in various neurasthenic conditions and will often initiate a marked gain in weight when food and other tonics fail.—*Berl. klin. Woch.*, June 30, 1913.

Lymphango-Phlebitis:

Extract Opii	grn. viij
Aquæ	f. 3j
Ichthyolis	f. 3iv
Glycerini	f. 3xi

M. Sig.: Apply on lint.

Progress in Materia Medica and Therapeutics

TREATMENT OF MENSTRUAL DISTURBANCES IN THE TROPICS

Every physician who has had experience in the tropics will realize that menstrual disturbances are generally more severe there than at home. Frequently there are no objective findings or these are so slight as not to explain the condition. Another fact to be remembered is that operations cannot be performed as readily as at home. H. Ziemann draws the attention of the medical profession to a new remedy, eumenol, which he has found very serviceable in these cases. It is the extract of a root indigenous in China and has been used for a very long time by the Chinese for menstrual disturbances. If a teaspoonful is given three times a day shortly before the period and for the first days of the period, there will usually be a pronounced improvement of all the symptoms. The best effects were obtained in nervous dysmenorrhea. The preparation is now marketed in the form of tablets, 0.3 Gm. corresponding to 0.6 Gm. of the fluid preparation.—Arch. f. Schiffs u. Tropen Hygiene, vol. 17, 1913.

DUODENAL FEEDING

When the stomach is intolerant of food, the difficulties of feeding are often very great. Rectal feeding is generally inadequate, while subcutaneously, only fats can be given and the absorption here is very slow. A great advance was made when it was found that food can be directly introduced into the duodenum by a special sound. In one case described in detail by P. Lazarus, such severe vomiting was present that food of any kind, given by the spoonful could not be retained. The patient soon wasted to a skeleton and her condition became exceedingly grave. A duodenal tube was then passed down 100 Cc. from the teeth so that its end was lodged about 30 Cc. distally from the pylorus. Every 2 hours $1\frac{1}{5}$ litre of cream with the yolk of an egg and milk sugar were passed through the tube, with the result that the patient gained four pounds in eight days. The patient soon learned how to pass the tube herself. This duodenal feeding was kept up for 70 days, during which time there was a gain in weight of 28 pounds and a gradual disappearance of

all the symptoms of inanition. The indications for this duodenal feeding are (1) cachectic conditions owing to pernicious anemia, constitutional or chronic febrile conditions such as tuberculosis. (2) Stomach diseases. This also includes feeding before and after operations on the stomach. (3) Obstructions in the gastro-intestinal tract from the lips to the pylorus. The tube here should be small and soft and may have to be inserted through the nose. (4) In wasting, especially in neuroses of the depressive kind. (5) In obstinate vomiting, as in crises and pregnancy. The duodenal tube also permits of duodenal lavage as in catarrhal jaundice and auto-intoxication. Certain objectional drugs, as oil, tapeworm remedies, etc., may also be introduced into the system in this way.—Berl. klin. Woch., July 28, 1913.

COLLOID COPPER IN CANCER

The results of a study of the effects of colloid copper injections in cancer are reported by R. Weil, which was undertaken by him and his coworkers in the Cancer Research Service of the Cornell University Medical School, to test the claims made by Loeb that it caused a retrogression of all types of cancer. They followed his methods of preparation and administration of the copper solutions in the treatment of twelve ward patients in the General Memorial Hospital, employing exclusively the intravenous route and making injections, as far as possible, every day of the treatment. On account of the tendency to produce phlebitis the location of the injection had to be changed very often and other objectionable results, chill, pyrexia, loss of weight, nausea, etc., were observed. In spite of these, however, the majority of the patients stood the treatment fairly well for a month, but it could not be said that their condition improved. The slight hemoglobinuria and albuminuria observed in some cases suggest a destructive action on the normal tissues and organs, and this is somewhat confirmed by the post-mortem findings in one case. Very little seems to be excreted in the urine, but large amounts were found in the pus, and it seems to accumulate in the liver. None was found in the tumors themselves. The retrogression

claimed by Loeb and his associates was not observed, and Weil says in concluding: "The preparation described by Loeb as colloidal copper has been administered in twelve cases of malignant disease, in eight of which the treatment was thoroughly carried out. The treatment resulted in most of the cases in the production of mild constitutional effects, such as fevers, chills, nausea, some loss of weight, slight reduction of hemoglobin and occasional albuminuria or hemoglobinuria. Chemical analysis of two tumors from treated patients failed to reveal the presence of copper, while in a liver obtained at necropsy it was present in appreciable quantity. Judged by certain clinical criteria, which have been adopted as a reliable standard of therapeutic effectiveness, the treatment has not appeared to exert a destructive action on the tumor tissue in any of the cases. Seven of the cases, which offer data of interest, are reported."—*Jour. A. M. A.*, Sept. 27, 1913.

CARDIOVASCULAR SYMPTOMS IN DIABETIC COMA

It is well known that death may result in severe diabetes from acute cardiac failure independently of any comatose condition. This, according to R. Ehrman, is due to a failure of the entire cardio-vascular apparatus and is preceded by a decided fall in blood-pressure caused by an intoxication of the system with the acid responsible for the coma. This fall in blood-pressure may precede the coma for a long time and is therefore a symptom of the precomatose stage. Other signs of the precomatose stage may be deep breathing and a characteristic appearance of these patients, suggesting the facies of cases who have just gone through an epileptic attack. An acetone odor is often noticeable and the eyeballs are very soft to the touch. The danger is usually the greater the less marked the iron chloride reaction in the urine. Often the reaction becomes positive if sodium bicarbonate is given in large doses and the urine becomes alkaline. It seems that the soda does not neutralize the acids, as is generally believed, but hastens their excretion. The chief indications for treatment in the precomatose stage of diabetes are the cardiovascular symptoms. Sodium bicarbonate should be administered in doses of 30 to 50 Gm. per day and should be replaced by calcium carbonate 5 to 10 Gm. in case of diarrhea, or else the soda may be given per rectum or with the duodenal sound. The intravenous infusion of a 3 to 5 per cent. solution can generally be dispensed with as it is not quite free from danger. Good

effects reported from infusion are probably more often due to the rise in blood-pressure than to the soda. Suitable heart stimulants are alcohol in large doses, coffee, camphor and caffeine sodium benzoate. It is possible that theobromine combination, such as diuretin are to be preferred owing to their greater diuretic effect and often, some good digitalis preparation, such as *digipuratum* will be in place.—*Berl. klin. Woch.*, Aug. 4, 1913.

PROPHYLAXIS OF SCARLET FEVER AND MEASLES

J. Elgart reports excellent results in the prophylaxis of scarlet fever and measles from the use of eucalyptus oil. He followed the directions of Milne except that he did not smear the whole body with the oil but had the children wear a bag kept soaked with the oil, thus inhaling the fumes constantly.

Milne did not isolate the children but merely smeared from head to heel with the eucalyptus oil twice a day for the first four days and then once a day for six days, while the tonsils were swabbed with 10 per cent phenol in oil, at first every two hours the first day and then at longer intervals. The swab used was always the size of the patient's thumb. Elgart prefers inhalation of a 30 or 50 per cent solution of lime (*Aq. calcis*) to sterilize the throat, instead of the phenol, and has found it equally effective, but he makes a point of having every one coming in contact with the patients or exposed to infection in any way use the inhalations also, and likewise wear the eucalyptus oil amulets. In one ward with seven children, one developed scarlet fever and was isolated; the other children for four weeks were made to inhale the 50 per cent solution of lime twice a day at first and later once a day and wear the eucalyptus oil bags and none developed scarlet fever. He remarks that the development of the scarlet fever in a child who had been in the hospital for four weeks suggests that ordinary sore throat cocci may have acquired exceptional virulence for some reason and thus set up the scarlet fever. Milne's technic is based on the assumption that the eucalyptus oil sterilizes the desquamating skin, but Elgart thinks that this is unnecessary if only the receptive organs of the persons liable to become infected are kept sterilized, and he thinks that this is accomplished by keeping the air of the room saturated with the fumes of the eucalyptus oil on the neck bags, supplemented by direct sterilization of the throat, keeping up these measures for six weeks.

His experience confirms further that the eucalyptus oil neck bags are effectual also in prophylaxis of measles; no further cases developed in a ward with eighteen children after two coming down with measles had been isolated and the others kept supplied with the oil amulets. The isolation was maintained only while the bronchitis lasted, about two weeks. Scarcely any of his scarlet fever patients inhaling the solution of lime systematically developed complications, and they were extremely mild and brief. He is convinced that his success sustains his assumption that the acute infectious diseases are spread by inhalation, and that by keeping the inhaling organs of all exposed constantly sterilized with the eucalyptus fumes, the lime water or other effectual disinfectant, the spread of the infection can be prevented, the disease attenuated and the course shortened.—*Med. Klinik*, Aug. 3, 1913.

DIPHTHERIA-CARRIERS

H. Albert, of Iowa City, Iowa, reviews and criticizes the various methods that have been employed in the management of diphtheria-carriers, including the use of serum treatment, staphylococcus, sprays, etc. He gives his experience and experiments as to the presence of the diphtheria bacilli of carriers in the tonsillar crypts. These, he says seem to be the logical place for them, since they are usually the ones primarily affected, and when diphtheria bacilli have gained entrance to the larger crypts they are but little disturbed. Those who have had extensive experience with carriers have found them with enlarged tonsils and deep and prominent crypt openings. Kretschner has succeeded in freeing thirteen patients from the carrier condition by squeezing out these crypts after other simple measures had failed. Albert describes the method of treating these cases used at the Iowa University Hospital by Dr. L. W. Dean in 1911, who was the first, as far as he knows, to use such applications for this purpose. A 5 or 10 per cent solution of silver nitrate in distilled water is made up and kept in a dark-colored bottle and applied by metal applicators, around which a very small amount of cotton is wound. This is dipped in the solution, the excess squeezed out against the neck of the bottle so as to prevent its trickling down the throat, and with the tongue well pressed down the crypts should be probed, preferably from below upward. The larger openings are easily found, and in probing them it is well to redip the applicator each time. The smaller ones are not so easily found, but several of

them can be probed without redipping. The method seems to cause an inflammatory reaction, destroying the epithelium of the crypts and tending to obliterate their lumen. His experience has assured him that the method is efficacious, less dangerous than the staphylococcus spray and the best single remedy we have.—*Jour. A. M. A.*, Sept. 27, 1913.

A NEW WAY OF GIVING NEOSALVARSAN

Since most of the evil effects following the injection of salvarsan or neosalvarsan are supposed to be due to bacterial or other impurities in the distilled water employed, C. Alexandrescu-Dersca recommends the use of much smaller amounts of solvent. He dissolves the amount of neosalvarsan to be used in only 1 or 2 Cc. of distilled water and injects this concentrated solution directly into a vein with a Luer syringe. He recommends that the neosalvarsan be marketed with a sealed vial containing the necessary amount of distilled water. The operation performed in this way is as simple as possible, does not require any time and is virtually painless. Various tests made showed that no hemolysis occurred.—*Muench. med. Woch.*, July 22, 1913.

TREATMENT OF DIARRHEA IN ADULTS

R. C. Cabot, of Boston, and H. Emerson, of New York, lay special emphasis on the fact deduced from their study that in many, and perhaps most cases, of diarrhea, the cause is unknown. As regards the part of intestine involved, they have not been able to identify any diarrhea originating in the small intestine, and as regards the colon they can only say that marked tenesmus points almost certainly to rectal inflammation. The study of the stools is of much prognostic importance. Blood and pus almost certainly indicate ulcer of the large intestine and a more chronic course. Fat, starch or protein in excess is of much less importance. Proctoscopy is of great importance in the prognosis, and enables recognition of ulceration, thickening and infiltration, etc. Diphtheritic colitis causes no characteristic symptoms, either in the stools or otherwise. Mucous colitis is, they believe, not a colitis at all, but a neurosis associated with constipation and sometimes with starvation. Chronicity is not necessarily of bad prognostic import. The fatal cases found were not as a rule those of long duration. Ulceration belongs largely to the intractable cases. It is a common experience that a patient comes to the hospital with a history of chronic diarrhea of

months' or years' standing, and before his case has been thoroughly studied for treatment the diarrhea has ceased and does not reappear, and finally the bowels have to be moved by enemas or laxatives." When the patient resumes his ordinary occupations, however, the diarrhea reappears and its disappearance must be interpreted as due to the remarkable effect of lying in bed. How far this may act by its effect on the splanchnic circulation they do not attempt to say. The good effects of purgation in acute and benign cases are familiar, and castor oil or magnesium sulphate seem secondary only to rest in bed. In acute cases starvation with catharsis is the ideal treatment. Warm normal saline solution irrigations seem to be of value in some obstinate cases and olive oil is useful in long-standing cases. Psychic influences are also mentioned as sometimes successful when other methods fail. As for drugs, the subcutaneous use of emetin in amebic dysentery, as advised by Rogers, seems one of the most brilliant therapeutic results in the history of medicine, and their experience confirms that of others in the few cases tried. Nothing new is added as regards opium, but large doses of bismuth are sometimes useful. Cecostomy and irrigation of the lower bowel through the appendix does not impress the authors favorably.—*Jour. A. M. A.*, Sept. 27, 1913.

ROOSING'S METHOD OF TREATING BURNS

As soon as the patient reaches the hospital, the surrounding healthy skin is carefully cleansed with soap, water and alcohol containing mercury bichloride. The wound itself is also sterilized as thoroughly as possible and all blisters are opened up. It will often be necessary to use a light narcosis for this purpose. After cleansing, the entire wound is covered with strips of gutta percha paper, containing small incisions to allow of drainage. The gutta percha is covered with a thick layer of 1 per cent nitrate of silver gauze and finally by sterile cotton which is kept in place by a bandage. Besides the local treatment, narcotics, stimulants and saline infusion may be required. The chief advantages of this method are that the dressing is antiseptic but that it can be readily changed without adhering to the raw surface. By the use of oils or salves an infection generally results which can almost surely be avoided by the gutta percha. With larger burns or where there is considerable suppuration, the area should be irrigated with sterile saline after each change of dressing. The growth of epith-

elium may also be hastened by dusting finely powdered boric acid over the surface. Wulff has tried the method and has obtained excellent results in over 60 cases. An important advantage is that contractures virtually never set in.—*Muench. med. Woch.*, July 29, 1913.

CODEONAL AS A SEDATIVE

Codeonal, a combination of codeine with diethylbarbituric acid, acts well as a sedative, according to Dr. Bönning, without in any way affecting the general condition. In women, one tablet will generally suffice while men more often require two to obtain an effect. The tablets were employed in the insomnia due to neurasthenia, vaginism morphinism, tuberculous fistulae, cholelithiasis, arteriosclerosis, tuberculous cough and alcoholism. After-effects or an increased tolerance toward the drug could never be observed. It seems that the addition of codeine to the diethylbarbituric acid will considerably increase the potency of the latter.—*Berl. klin. Woch.*, July 21, 1913.

INTOXICATION THROUGH BISMUTH

The bismuth subnitrate used for injecting fistulae frequently gives rise to intoxications which may be due to the bismuth or to the nitrite radical. If the latter is responsible, there will be restlessness, lassitude, vomiting, cyanosis, dyspnea, discoloration of the skin and death. A typical case is described by T. Jensen where there also was a rise of temperature up to over 40° C. The leucocytes were not increased. It is probable that the decomposition of the bismuth subnitrate is caused by the colon bacillus, hence every wound secretion should first be tested for this germ before the bismuth is injected. Unfortunately, none of the other bismuth salts can be used to replace the nitrate.—*Muench. Med. Woch.*, June 3, 1913.

INTRAVENOUS INJECTIONS OF GONOCOCCUS VACCINE

Most authors are agreed that gonococcus vaccine is indicated in most cases of epididymitis and arthritis. The opinions are still divided as to the effect in prostatitis, vulvovaginitis and cervical gonorrhea, while little can be expected in urethral gonorrhea. The injections are generally made intramuscularly and fever does not seem to be a contraindication. For diagnostic purposes, a local reaction is of little value and a rise of temperature may mean nothing while a reaction at the site of the disease is generally of importance though it need not occur. C. Bruck and A. Som-

mer generally prefer the intravenous application. The amount to be injected is diluted up to 0.5 Cc. and injected with an ordinary syringe. A slight chill and rise of temperature is the rule in most cases after one-half hour. A rise of temperature of 1.5° C. and higher in men after 0.1 Cc. of the preparation is usually specific for gonorrhea. The therapeutic effects of these intravenous injections are excellent in epididymitis and arthritis, even if fever is present. Good effects are also seen in prostatitis, but not in urethral processes. The occurrence of complications cannot be prevented by these intravenous injections. Further experience is necessary to test the value of the injections in female gonorrhea and in the vulvovaginitis of children.—Muench. Med. Woch., June 3, 1913.

FIBROLYSIN AS AID TO SPECIFIC CURES IN SYPHILIS

A number of authors now believe that there is a great advantage in giving fibrolysin with mercury and salvarsin in cases where there is a persistingly positive Wasserman reaction. According to most, a softening of the sclerotic and specific tissues will result, which will allow the drugs better to reach the encysted germs. The hyperemia which follows will also hasten the absorption of the infiltrates. D. Berlin has treated a number of cases with fibrolysin, mercury and salvarsan simultaneously but has seen no special advantage. The results were however decidedly better if the fibrolysin treatment followed an energetic, specific treatment, which was again resumed after a course of injections. It was thus possible to obtain a negative sero-reaction in 28.5 per cent of the most obstinate cases.—Med. Klinik., 1913, No. 27.

SUBCUTANEOUS IODIPIN INJECTIONS IN ACTINOMYCOSIS OF THE NECK

Although it has been known for a long time that actinomycosis of the skin may heal spontaneously, and that surgical treatment as well as the use of iodine externally or the iodides internally will tend to cure the disease, yet many cases remain uncured no matter what is done. Indeed, many physicians regard the disease as virtually incurable. One exceptionally severe case described by F. Bittner and J. Toman was treated with daily subcutaneous injections of sodium cacodylate, beginning with 1½ grains, increasing to 15 grains and then again decreasing. The hard infiltration about the left auditory meatus was incised

and into the surroundings 25 per cent iodipin was injected. The first injection was painless and without reaction. Two weeks later, a second iodipin injection was given and pain was experienced half an hour later. The infiltration began to swell and became red, so that moist dressings were applied but soon the infiltration began to soften and discharge through the small incision. In a few months the wound was completely healed with hardly a scar. Equally good results were obtained by the authors with iodipin in the treatment of lupus.—Prag. Mediz. Woch., 1913, No. 27.

TREATMENT OF PYELITIS

Every physician of experience knows how difficult it frequently is to clear the urine of all germs in pyelitis. Though the symptoms may disappear, there is always danger of recurrence as long as even a small number of germs are found in the urine. The best therapeutic effect was always obtained by H. Hohlweg by irrigation of the pelvis of the kidney. 15 out of 17 patients were absolutely cured in this way and re-examination, even several years later, failed to disclose bacilli in the urine. Two patients were not cured; in one there probably was some other focus within the body containing bacilli, while in the second, the kidney parenchyma itself was affected. It is clear that in cases of this kind, no cure can be expected from this form of treatment. The solutions employed were silver nitrate 0.1 to 1 per cent, argyrol 5 to 10 per cent, collargol and perhydrol ¼-½ per cent. The latter is often to be preferred since just as effective as silver nitrate and absolutely painless. The irrigation should be done 2 or 3 times a week, when a cure will usually result in 2-3 weeks. No case should be regarded as cured until the urine is absolutely free from germs.—Muench. Med. Woch., July 1-8, 1913.

TREATMENT OF LYMPHO-SARCOMA

According to E. Fabian, operative treatment of lympho-sarcoma should only be considered when the neoplasm is isolated and when leukemia, pseudoleukemia, malignant lymphoma, tuberculosis and syphilis can be excluded. Radical operation, if technically possible, is then to be recommended since a few instances of permanent cure have been reported in case of lympho-sarcoma of the tonsil, pharynx, colon, spleen and testicle. The smallest chance of a cure is presented by those cases which start from the external lymphatic groups. In recurrent

inoperable or generalized lympho-sarcomata one frequently sees recessive processes which generally only lead to apparent cures. Treatment is, however, to be continued energetically though a guarded prognosis must always be given. These recessive changes are seen after the use of cataplasms, incomplete operations, Röntgen ray treatment, treatment with radium or arsenic, after injections of Coley's mixed toxins and sometimes spontaneously. There is always a chance that the patient may be cured by the one or the other of these methods though the physiological cause of the cure is not yet understood.—*Muench. med. Woch.*, Aug. 26, 1913.

TREATMENT OF SYPHILITIC LARYNGITIS

J. C. Beck, of Chicago, enumerates and describes the various types of syphilitic laryngitis. The congenital form is rare and the late hereditary type is accompanied with the Hutchinson symptoms and the predilection of attack is the epiglottis. The ultimate changes are very severe. Of the acquired forms, very few cases are on record of primary chancre of the larynx. The erythematous form of specific laryngitis may be compared to a catarrhal condition, only with a deeper injection of the mucosa. The papular type is an early one, and condylomas are not very frequent and also appear early as a rule. The infiltrated form of laryngitis may properly be called the transitional stage from the early to the later form. The epiglottis is the most frequent location, though other parts are often infiltrated. The nodular form is somewhat rare and bears resemblance to lupus of the larynx. Solitary gumma of the larynx is more frequent than is recognized and is frequently mistaken for other neoplasms. The diffuse gumma has a predilection for the epiglottis, which is often entirely destroyed by its breaking down. In the perichondritic form of laryngeal syphilis the arytenoid is most often involved; it is a late secondary process. One may look for considerable difficulty with breathing and difficulty in swallowing, and should be on the alert for surgical emergencies. The end-results from all forms of destructive laryngeal syphilis, but especially those from the perichondritis, is granulation tissue in the form of cicatrices of excrescences causing more or less dyspnea. A form of laryngeal syphilis without ulceration is known as parasyphilis of the larynx, and is characterized by general cicatricial narrowing of its cavity. The general treatment of the

conditions is passed over as every one is familiar with the regular specific methods. Something, however, can be said in reference to the use of salvarsan. There was some fear of the Herxheimer reaction from its use, but this does not seem to have been successful. As an early treatment salvarsan seems to have been successful. Since syphilitic laryngitis is not usually painful, local treatment may be employed such as resection of chancre, the use of calomel or iodol insufflations, mild solutions of silver nitrate, etc. When the condition becomes more advanced and there is much swelling, surgical measures, such as tracheotomy, may be called for. The management of the end-results varies according to the conditions. Incisions of bands, resection of cicatrices with dilatation, and if there has been very severe perichondritis causing obstruction laryngostomy may be required.—*Jour. A. M. A.*, Oct. 4, 1913.

PROPHYLAXIS AND TREATMENT OF RHUS DERMATITIS

E. von Adelung writes that as the poison, after alighting on the skin, takes some time to penetrate, the first thing to do is to prevent penetration by a soap and hot-water bath of the whole body, including the hair. No article of clothing should be donned that has been exposed to the poison. Itching is readily relieved by water as hot as can be borne, which is usually a pleasant treatment, and of itself assists cure. The following remedies may then be used: (1) Ichthyol collodion, 5 per cent.; the lesions are painted with it three times daily. (2) Potassium permanganate, applied frequently as a hot 2 per cent. (or weaker) solution. A 1 per cent. solution of oxalic acid is usually sufficient to remove the resulting stain of the skin. Another objection to the permanganate is that after its use, followed by oxalic acid, the skin is left severely cracked, which is especially disagreeable on the face and hands; this is met by soothing ointments or oils. (3) Magnesium sulphate in saturated solution, applied on gauze, covered with rubber tissue and a bandage. (4) Tincture of iodine. Like the permanganate, this destroys the poison. The official tincture is used, diluted with 9 parts of water. The rhus dermatitis disappears quickly, but is replaced by an iodine burn.

Where pustules have formed, the vesicles having become infected, the hot permanganate solution appears to be useless. Hot mercuric solution should be used instead.—*Arch. of Int. Med.*, Feb., 1913.

Prescriptions

Neuralgia:

Olei Terebinthinæ
 Chloroformi
 Balsami Fioraventiāā 3j
 M. F. linimentum.

Gastralgia:

Chloroformi
 Tinct. Cardamomi Comp.
 Spt. Ammoniae Arom.
 Spt. Vini Galliciāā f. 3iv
 M. Sig.: Teaspoonful every half hour until re-
 lieved.

—Scott.

Emphysema:

Strychninae Sulphatisgrn. iv
 Tinct. Belladonnaef. 5j
 Elix. Curacoef. 5iij
 Aquaead f. 5iij
 M. Sig.: Two teaspoonfuls every 3 or 4 hours.

Galactorrhoea:

Ung. Belladonnae
 Lanumāā 5ss
 M. Sig.: Apply locally twice daily.

Gonorrhoeal Orchitis:

Ichthyolis
 Ung. Hydrarg.
 Adipis Lanæāā 3iv
 M. Sig.: Apply three times daily.
 —W. Horne, Mt. Ayr, Ia.

Infected Wounds:

Ichthyolis
 Glyceriniāā 3iv
 M. Sig.: Apply every 2 to 4 hours. Bathe
 parts with water as hot as can be borne before
 each application.

—W. Horne.

Hyperidrosis Pedum:

Perhydrolisf. 5j
 Formaldehydif. 5ss
 Aquae Destillatæad f. 5xiijss

Headache: Eau Sédative:

Sodii Chloridi5j
 Spt. Camphoræf. 5j
 Aquae Ammoniaef. 5iij
 AquaeOj
 M. Sig.: Apply locally.

Alopecia Seborrheica:

Hydrarg. Chloridi Corros.grn. iv
 Euresol. Pro Capillis5ij
 Spt. Formicarumf. 5j
 Olei Ricinif. 5j-iiij
 Alcoholisad f. 5iij
 M. Sig.: Wash for scalp. (Poison.)
 —C. J. White.

Eczema:

Zinci Oxidi3iv
 Lenigallolis5ij
 Adipis Lanæ3iv
 Petrolati3iv

Lichen Ruber:

Olei Ruscif. 5j
 Lanum5v
 Petrolati5iij
 Olei Lavandulaegtt. v
 M. Sig.: Apply twice daily.

Impetigo of Scalp:

Hydrargyri Bichloridigrn. jss
 Adipis Lanæ5iv
 Petrolati5iv
 M. Sig.: Apply twice daily.

Frost-Bite:

Pyoktanini Flavigrn. ij
 Cocainæ Hydrochlor.grn. iv
 Bismuthi Subsalicylatisgrn. xxx
 Lanum5v
 Petrolati5iij
 M. Sig.: Apply freely.

Chronic Hepatitis:

Fel. Bovis Purif.5j
 Resinae Podophylligrn. v
 M. Div. in pil. No. xx.
 Sig.: One pill three times a day.

Pharyngeal Cough:

Betanaphtholisgrn. iij
 Sodii Boratis5ss
 Aquae Menthae Pip.f. 5vij
 Aquaead f. 5xxxv
 M. Fiat gargarisma.

If any inflammatory condition is present, the
 pharynx should be swabbed with the following:

Cocainæ Hydrochloridigrn. ij
 Resorcinolisgrn. xv
 Glycerinif. 5j
 M. Fiat collutorium.

—A. Robin.

Codliver Oil Jelly:

Gelatini Puri5ss
 Aquae
 Syrupiāā f. 5iv
 Olei Morrhuaef. 5viiij
 Olei Cinnamomiq. s.
 M. Fiat secundum artem.

The gelatin should first be dissolved in the
 water, the latter having been previously heated to
 boiling. The syrup, oil and aromatic essence are
 then to be added, the receptacle placed in cold
 water, and the mixture beaten for five minutes
 and then allowed to solidify.

Oxaluria:

The following has been found useful where
 there is anemia and nervous atony:

Acidi Hydrochloridi Dil.f. 5ss
 Tinct. Ferri Chloridif. 5ij
 Syrupi Simplicisf. 5ijss
 Aquaead f. 5viiij

M. Sig.: Tablespoonful three times a day
 through a glass tube.

—Hazard.

Chapped Hands:

Mentholis Pulv.grn. xv
 Phenylis Salicylatisgrn. xxx
 Olei Olivef. 5iij
 Adipis Lanæ Hydros.5jss
 M. et ft. ung.

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OCTOBER, 1913

EDITOR'S NOTES

Treatment of Soft Chancre and Gonorrhea

The early treatment of a soft chancre, which generally appears two or three days after intercourse is not to be recommended, so that a mixed infection can be positively ruled out. For 8 or 10 days, expectant treatment with saline dressings is carried out and a positive diagnosis is made only after the specific spirillum of syphilis has not been detected on two separate examinations. The Wassermann reaction should be done weekly for ten weeks after the infection. The best drugs for soft ulcers are liquefied carbolic acid and iodoform. The entire surroundings of the sore should be shaved and cleaned with benzine, after which the base of the ulcer is thoroughly cauterized with the carbolic acid, particularly along the edges. After three or four cauterizations, performed once daily, the sore is usually clean and the tendency to spread is checked. After every cauterization, the ulcer is dusted thoroughly with deodorized iodoform and covered with cotton. The foreskin should always be brought back to its normal position, to avoid disturbance of circulation. Small ulcers in a suitable position may be excised to advantage, if the patient gives his consent. When there is much secretion, the dressing may have to be changed during the course of the day, or a wet dressing or salve with 10 per cent protargol, or 10 per cent tannin may be employed. As a rule, however, ul-

cers about the genitals heal best with dry treatment, until all infection has been checked. The substitutes for iodoform are used in the same way.

When a healing tendency is not evident in a short time, hot local baths, or irrigation of the sore with potassium permanganate 0.3-0.5:1000 may be serviceable. In very refractory cases the patient is placed in bed, hot applications are applied and the sore is treated daily with silver nitrate. In the gangrenous type, this treatment is particularly indicated and carbolic acid should be employed with caution. Treated in this way the phagedenic type will hardly ever be observed.

A complicating inflammatory phimosi disappears most rapidly with cold applications of aluminum acetate and frequent irrigations with potassium permanganate, sublimate or carbolic acid solutions. Sometimes incision or circumcision will be necessary. A bubo will occur in about one-third of the cases of soft chancre. If the patient is put to bed at once and hot applications are applied, it may be possible to abort the process, but as soon as pus has formed, a small incision is made, the wound irrigated with 3 per cent carbolic acid and then 2 to 3 Cc. of a 10 per cent emulsion of iodoform in glycerin injected. Sometimes it will be necessary to repeat this procedure once or twice. Even in strumous buboes, the complete extirpation is rarely indicated since much better results will be obtained with the applications of the X-rays.

In every case of gonorrhea, certain hygienic and dietetic measures must be observed. Bodily exertion, alcohol and spiced food must be scrupulously avoided. The bowels should be regulated, the patient should drink plenty of fluids and should take a daily sitz-bath. A well-fitting suspensory bandage is to be recommended. The internal use of balsamics does not accomplish nearly what is claimed for it, but no doubt the irritation and excessive secretion will be somewhat checked. Dr. Gennerich prefers oil of santal, 10 to 15 drops, three times daily, or gonosan, 2 or 3 capsules, three times daily. He is not in favor of the Janet irrigation in acute cases, except where it is desirable to check the secretion rapidly or when the patient himself cannot use injections owing to ulcers at the mouth of the urethra. The various popular silver salts are excellent, provided weak solutions are used in the beginning. The directions for using the injections are as follows: The urethra is first cleansed for 1 minute with one syringe-

ful of potassium permanganate 0.5:1000. The organ is held downward and the patient stands up with legs closely together. The permanganate injection is followed by injections of protargol, gradually increasing in strength from $\frac{1}{4}$ to 1 per cent. For the first few days 3 injections, lasting 5 to 10 minutes, are adequate; later 7 injections, lasting 15 to 20 minutes, are in place. Where an abortive treatment is to be tried, a 2 per cent solution of silver nitrate is first instilled into the fossa navicularis. After 2 minutes, an injection of 4 per cent protargol is made into the urethra, and after another 5 minutes the anterior urethra is irrigated with silver nitrate 1:1000. This irrigation is repeated in the evening. The patients remain in bed and use a three-hourly injection of $\frac{1}{4}$ per cent protargol. If there is no improvement after the third or fourth day, the usual treatment should be instituted.

It is very questionable whether injections alone will lead to a cure in the majority of cases, inasmuch as an involvement of the posterior urethra occurs more frequently than is suspected from the two-glass test. In fact, the use of injections alone is apt to lead to a subacute or chronic inflammatory condition in the prostate gland. With irrigations alone, there is greater danger of epididymitis than of prostatitis. As after-treatment, it is therefore advised (after the end of the fourth week) to irrigate with weak solution of silver nitrate (0.3-0.5:1000), using a soft olivary catheter. This constitutes the best prophylaxis against involvement of the posterior urethra and the adjacent organs. These irrigations may be performed at first every second day and later daily, and after the sixth week an Ulzmann syringe may be employed. After every irrigation a hot sitz-bath is recommended. The prostate should be examined weekly, though massage, if not necessary, is to be condemned, since it favors an epididymitis. After the fourth week, however, massage may be performed before the posterior irrigation.

With acute posterior involvement, the patient is best put to bed. Uva ursi decoction, gonosan and morphine and belladonna suppositories may be indicated. It is usually not necessary to discontinue treatment of the anterior urethra. After the acute symptoms have disappeared, irrigations or instillations are in place, using 0.3-0.5:1000 silver nitrate for the former and 2 per cent for the latter.

The last stage in the treatment of gonorrhea consists in using irrigations of hot

potassium permanganate solution for a few days, or injection of zinc sulphate (1.3:1000). In this way the remaining discharge is rapidly checked. During the last week, bougies may also be pasted.

Conducted in this way, the average treatment of acute cases lasts between 35 and 38 days. Recurrences occur in about 6 to 8 per cent of the cases. Chronic cases are seen generally only when the patient has treated himself. They are usually managed by Janet irrigations with hot potassium permanganate solution (0.2-0.5:1000) with injections of silver nitrate (0.3-1:1000). The treatment of the posterior urethra with massage of the prostate is still more indicated here than during the end stages of an acute attack. In obstinate cases, sounding instillations and the use of the endoscope will be in place.

Despite the excellent results obtained the treatment of gonorrhea is still far from perfect owing to the complicated anatomical structure of the genito-urinary apparatus. The antibacterial treatment, is, however, the best we have at our disposal and even vaccine treatment has not been able to replace it. The question that will often arise is if the patient is safe in marrying. It is best to employ bougies and then to inject a solution of silver nitrate. On the following morning the secretion from the urethra and prostate is carefully examined for gonococci. If the examination is negative, the probabilities are that the gonorrhea is cured.

Gonorrheal rheumatism, a very common complication, is best treated at first by means of intravenous injections of collargol. In very recent cases it is often possible to cure the patient in 1 to 2 weeks. If the acute inflammation has passed, the results are not nearly so good. Here, vaccine treatment must be substituted. To give vaccines during the acute stage is generally a mistake, since an inflammatory reaction will be provoked which intensifies the pain. Collargol injections also act as specific in the acute inflammation of the prostate and epididymis and permit one to continue local treatment. If treated in this way, the prognosis of these complications is generally excellent, excepting only those cases of gonorrhea infection of extensive muscular areas which usually lead to sclerosis. These cases are not, however, very common (1:1000). In the very chronic cases of joint involvement, Bier's treatment and other physical and mechanical methods should be employed.

Epididymitis, funiculitis and prostatitis are also best treated with vaccines after the acute stage.

Case have been reported where a recent arthritis has been successfully aborted with the puncture fluid of gonorrheic hydrocele. Atophan has also been recommended.

Collargol is best injected in a freshly prepared 1 per cent solution in distilled water in amounts of 8 to 15 Cc. daily. As a rule, 14 injections will suffice. For vaccination, arthigon may be employed in subcutaneous doses of 0.5 to 5 Cc. every third to fourth day.

Locally, the epididymitis is treated for 3 to 4 days with an ice-bag; later, hot applications are better. Acute prostatitis is best managed with heat and massage, followed by irrigation of the urethra. An abscess requires surgical treatment though it will often heal spontaneously after it has ruptured into the rectum.

Gonorrheic cystitis is best managed with conservative measures. In obstinate cases, the bladder may be washed with a solution of silver nitrate 0.3-1.0:1000. Later on, a colon infection may take place, when vaccination will offer the best chance for a cure.

Benzol Treatment of Leukemia

L. G. Heyn, of Cincinnati, O., writes that further experience with benzol seems to justify its use in both myeloid and lymphatic leukemias where its action is similar to the X-ray and arsenic, after acting where these two agents no longer yield results. The author discusses the work of Kiralyfi, who has extended its use to forms of the large group of conditions spoken of as pseudo-leukemia. In pseudo-leukemia the classification is made of the lymphomatoses and the granulomatous, the former including such conditions as Hodkins' disease and lympho-sarcoma, the latter (granulomatous) certain inflammatory conditions as general tuberculosis and syphilitic adenitis. The true forms of pseudo-leukemia are definitely due to a disease of the hematopoietic system and in these cases the benzol treatment has proven its efficiency often where the X-ray has failed.

Certain valuable suggestions as to the method of administering the benzol are given, notably the suggestion that the treatment must not be pushed too rapidly for fear that the white cells may be so reduced that serious symptoms, such as hemorrhage and collapse may occur. Where the white count is high as in the true leukemias, it is well to stop the benzol when the count has

dropped to 20,000. In the pseudo-leukemias, where there is usually some increase in the white cells, it is well not to produce much of a leukopenia. Benzol is administered in one-gram doses in capsules three times a day. Where the stomach does not tolerate the drug, it may be satisfactorily administered per rectum in two-gram doses in olive oil (50 grams) three times a day.

Good results have so far been obtained in myelogenous and lymphatic leukemia, and pseudo-leukemia of the lymphomatous type. The granulomatous type of pseudo-leukemia, lymphosarcoma and Banti's disease are but slightly influenced by the benzol therapy. In certain cases, the benzol and X-ray treatment may be satisfactorily combined. From other reports in the literature (as that of Kai Jespersen of Copenhagen) recurrences are already being reported, but the results in general are perhaps the best that we have yet obtained in these hitherto incurable conditions.—Lancet-Clinic, Aug. 23, 1913.

Treatment of Leucorrhea

Every case of leucorrhea demands a careful examination on part of the physician for the discharge may be the first symptom of a carcinoma or some other serious illness of the generative organs. For the symptom leucorrhea, douches have been quite commonly prescribed, but within recent years dry treatment by means of powder insufflations have become very popular. G. Katz states that it is wrong to treat every case by routine. Thus, in chlorotic virgins, both douches and powder are out of place and the discharge will generally stop if the general condition is treated. Where there is an endometritis of the body of the uterus, powder may do harm and may lead to the formation of a pelvic exudate. The proper way to proceed is to use douches with mild disinfectants or astringents first and to substitute powder insufflation if no effect is apparent within a reasonable time. Often, it is also wise to alternate. The powder generally employed is bolus alba. The bolus alba may be combined with peroxide, silver and iodine preparations. The powder is applied daily through a speculum; on the following day, a douche is taken and then another insufflation is made. Suitable conditions for this treatment are acute and chronic gonorrhea, erosions, catarrh of the cervix and all forms of colpitis and vulvitis. It is always best if the physician applies the powder himself and does not depend upon an insufflator.—Berl. klin. Woch., April 28, 1913.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Sterile Animals.—That young animals may be obtained germ free by cesarean section, and that they may then be maintained for some time in a sterile condition, has been demonstrated by Küster. The problem is not a new one, and the solution represents a work of twenty years. The author has continued the work of Schottelins, and in his experiments used goats. Kids are remarkable for their tireless energy, are easily raised on the bottle, and show superior utilization of nutriment. They are also of size sufficient for blood tests and the like. He subjected a young pregnant goat to cesarean section about eight days before term. The meconium and amniotic fluid were pronounced sterile. The mother was operated on under chloroform-ether, which she withstood well. The kids were asphyctic when extracted, but were soon reanimated, and in due time were fed on sterile milk and later on other sterile food, so that the intestinal tract showed no flora. The trial experiments, however, showed that a highly developed technique was required to fill all requirements for sterilization, so that the conditions are almost prohibitive save for pure experiment. To follow up the life of a sterile animal is vastly significant, in that it shows the general effect of germ life upon the life and health of a warm-blooded animal. The author states that his work thus far has only pointed out the way in this effort.—*Deutsche Med. Woch.*, Aug. 14, 1913.

The Relative Value of Turtle Tuberculin in the Treatment of Tuberculosis.—"The treatment of individual diseases with medicines or by methods having a selective curative action has, until recent years, been limited. With the establishment of the germ theory, and vaccine therapy of certain diseases and the development of information concerning immunity, new methods of specific treatment have been made possible, and are now practiced under the terms of serum and vaccine therapy." This is part of an introductory paragraph of a contribution to the *New York Medical Journal* for September 13, 1913, by J. W. Beattie, of New Hampshire, and E. E. Meyers, of New York.

The authors mention the fact that to Robert Koch belongs the honor of giving to the world twenty-three years ago tuberculin, which was the first great advance in the diagnosis of tuberculosis. Prior to this the disease was generally recognized as a fatal malady; it was not diagnosed until the disease was advanced and the symptoms marked, and then death was required to substantiate the diagnosis. His discovery of the difference in the action of the remedy on the healthy and the tuberculous has proven to be one of the most important discoveries in the modern study of tuberculosis. This discovery gave the profession the tuberculin test, which has not only made possible an early diagnosis of the presence of tuberculosis, but has also given us a more thorough understanding of the nature of the disease and the essentials of its prevention, as well as led to its specific treatment.

Drs. Beattie and Myers quote von Ruck's reference to the claims of Friedman for the superior

value of a living tubercle bacilli in the treatment of tuberculosis, and deprecate the Berlin doctor's spectacular advertising propaganda. Von Ruck said: "Inasmuch as living tubercle bacilli of the human type have been found in vaccinated cattle, both in their flesh and in their milk, as long as three years after their intravenous injection, the objection to the use of the living tubercle bacilli as an antigen, or vaccine for prophylactic purposes in the human subject is well founded. A more formidable objection is, however, the danger of virulence."

Recent investigations with turtle tuberculin, in Professor Piorkowski's laboratories, made by the authors, show that tubercle bacilli, when grown in the blood serum of (cold blooded animals) turtles change quite distinctively its bacteriological characteristics, particularly in lessening its virulence and at the same time increasing its power to form antibodies in the blood of tuberculous patients. This turtle tuberculin acts as a direct stimulant to the antibodies of tuberculosis, exerting far greater beneficial effects than human tuberculin, even when the latter is given in the most carefully graded and guarded doses. Furthermore, turtle tuberculin produces only a very slight reaction, besides it possesses far greater immunizing properties than does human tuberculin, with none of the latter's untoward effects.

According to the author's experience, the smallest immunizing dose was one minim of turtle tuberculin administered in 16 minims of normal salt solution. The interval between doses depends upon the recurrence or exacerbation of original symptoms, which is usually about seven days. Very slight reactions, such as a rise of temperature to 100 F., and more or less languor for about twenty-four hours following the injection, are the only reactions which occur even with a maximum dose.

The best site for injection of turtle tuberculin is in the fold of the gluteal region between the glutens maximus and minimus muscles, which location facilitates absorption.

Auditory Acuity.—W. A. Wells, of Washington, D. C., remarks on the lack of satisfactorily accurate methods of testing the hearing, qualitative as well as quantitative, and examines and shows the deficiencies of the various methods in use. Strictly speaking, he says, we cannot really measure auditory sensation at all, because it is not a quantity divisible into equal units. We take as a criterion the lowest energy needed to produce a perception of sound, the liminal value or, from the standpoint of the ear, what we call the threshold of excitation. In this we are obliged to depend on the intelligence, aptness and attention of the patient, and expectation and suggestion, and, in case of children, fear, nervousness and anxiety are factors that effect the validity of the tests. Fatigue of the ear also lowers the threshold, as he has found by recent experiments. The sources of error in these tests, which are many, should be understood and carefully borne in mind. The one most to be guarded against is that of depending on distance as a reliable means of estimating sound intensity. Admitting that the intensity of sound diminishes with distance in a geometric ratio, the regularity of this is disturbed by other factors, the absorption and reflection of the sound waves, the influence of extraneous noises and the perception of the other ear, may, singly or together, upset all calculations made from the commonly em-

ployed tests. The errors arising from the lack of a uniform initial intensity are encountered in those tests in which this is depended on, as in the use of the human voice, the intensity of which can only be roughly gauged, and differs even with the choice of vowels and their arrangement. Really all the tests are open to the objection that they apply only to limited portions of the auditory field. "A general survey of the subject of auditory mensuration leads to the inevitable conclusion that there is great need of a system that will meet the exacting requirements of otologic purposes. The ideal instrument for testing audition, from an otologist's standpoint, would be one capable of producing all the notes of the scale, from the highest to the lowest, in pure tones, free from harmonics and capable of giving these notes in intensities readily measurable and varying from a point below the threshold of excitation of the most sensitive hearing up to a degree necessary to awake sensation in persons suffering from the most profound deafness. Moreover, in order that such an apparatus may deserve universal acceptance, it must be possible to construct as many others as are wanted of the same type, each constant for itself and precisely similar to the others. It is only then that we can hope to make it available for a uniform notation comparable among different observers."—*Jour. A. M. A.*, Sept. 27, 1913.

Diagnosis of Cancer of the Uterus.—R. B. Hall, of Cincinnati, emphasizes the importance of educating the laity as well as the family physician to notice the early signs of uterine cancer. It is desirable to consider the cancer of the cervix and of the body of the uterus separately. He says: "The early symptoms of cancer of the cervix, which I have observed in the order of their importance, are: (1) a watery discharge; (2) an irritable bladder; (3) a little irregular bleeding, and (4) a disagreeable odor. In reference to the watery discharge I do not mean the ordinary leukorrheal discharge that women frequently complain of, but a watery discharge not unlike beef brine in its appearance. It may not be very profuse, but enough to stain the linen brownish. It irritates the vulva. It is more or less constant for a varying period or from five or six weeks to three or four months before the patient considers herself ill. This is a most important symptom." Slight irregular bleeding should be immediately investigated, but it is not especially an early symptom. Hemorrhage and pain come late in the disease. Cancer of the cervix should be differentiated early from erosion, laceration with inflammation, cystic degeneration, tuberculous ulcer and chancre. If malignant disease is present a small nodule is to be found. As regards the first three, no examination will be complete without microscopic scrutiny. Tuberculous ulcer and chancre are rare, and there should be no very great difficulty in their diagnosis. The early diagnosis of cancer of the body of the uterus is also much neglected. Its approach is insidious and, unlike cervical cancer, it may occur in the maiden as well as in the woman who has borne children. It is comparatively rare before the menopause, and the earliest symptom, Hall says, is a watery discharge with slight irregular hemorrhage gradually increasing, and pruritus. Pain comes on later in the disease when the uterus has become enlarged by the new growth and is endeavoring to rid itself

of the foreign body. The diagnosis of cancer of the body of the uterus is not at all difficult with the clinical history. The physician will find the uterus enlarged, freely movable, and more sensitive than normal, with no perceptible disease of the cervix. In advanced cases a probe gently introduced may show a depth of three inches or more and cause a discharge of bright red blood. If the first examination does not give a positive diagnosis the uterus should be curetted under an anesthetic and microscopic examination of the scrapings made. Only rarely has Hall had to make a secondary curetting.—*Jour. A. M. A.*, Oct. 4, 1913.

Mouth Infection.—T. B. Hartzell, of Minneapolis, emphasizes the responsibility of the dentist and physician as regards mouth infection. The mouth is the largest portal through which infectious organisms may enter the body, and almost every pathogenic organism has been found in it. Hartzell describes the finer anatomy of the teeth and alveolar processes, and says that the bacterial accumulation on the teeth is rarely recognized. He recommends the use of the following stain: Iodine, 45 grains; zinc iodide and potassium iodide, each 15 grains, water and glycerol-glycerin, each 4 drams. A cotton sponge dipped into this stain and applied to the necks of the teeth instantly brings into view a heavy brown coat, and after rinsing with water whatever bacterial coat the teeth may at that time bear is brought into view. An infected mouth may produce four distinct pathologic effects: "1. That produced by the dissemination of bacteria through the medium of lymphatic drainage. 2. That produced by bacteria through the open blood vessels. 3. That damage sustained by the individual through the change in the chemistry of digestion caused by the bacterial poisons. 4. That produced by a general bacteremia which not infrequently is a direct result of the dissemination of bacteria in the blood stream." While the general harm may be only slight and the mischief confined to the teeth, statistics have shown him that severe constitutional lesions, which are usually overlooked, occur in about one of every ten cases and can be traced to the mouth. He gives an interesting analysis of 1,000 cases of mouth infection in a healthy community. Six hundred appeared to be healthy and normal except in the teeth and gums. In 300 there were more severe physical disturbances, and in 120 cases a variety of physical ailments was observed. In eighty of these cases the disturbances involved the entire alimentary tract. Fifty had periodic and severe migraine, and the whole suffered from more or less nervous irritation. Two or three special instances are mentioned in which very marked morbid conditions were relieved by attention to the mouth. There seems to be, he says, no function or tissue of the body which may not be reached by infection from the oral tissues, and it is eminently proper, therefore, that physicians should scrutinize more closely the mouths of their patients in their routine examinations unless the patient is already in the hands of a competent dentist who appreciates the vital relation borne by diseased teeth to the general health of the individual.—*Jour. A. M. A.*, Oct. 4, 1913.

RENAL CALCULI occasionally cause constant dull pain without any "attacks."—*Amer. Jour. Surg.*

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GRANDFATHER'S CRITICISM.—The christening party consisted of the proud father, the baby—a girl—the grandfather and the rest of the folks. The grandfather stood nearest the priest during the ceremony.

"What's the child's name?" asked the priest of the grandfather at the appropriate moment.

"I dunno," the grandfather replied. And he turned to the father and whispered hoarsely: "What's its name?"

"Hazel," replied the father.

"What?" asked the grandfather.

"Hazel," repeated the father.

The grandfather threw up his hands in disgust.

"What d'ye think av that?" he asked the priest. "With the calendar av the saints full av gurr-l names—an' him namin' his after a nut!"—Saturday Evening Post.

ADRENAL HYPERNEPHROMA WITH PRECOCIOUS DEVELOPMENT OF SEXUAL CHARACTERISTICS.—In the recently issued annual volume of "Guy's Hospital Reports" is a brief paper by Dr. Herbert French on a rare condition, of which up to the present less than twenty cases have been recorded, where a tumor of the suprarenal cortex has been associated with abnormal development of the external genitalia and the characteristics of sex. Dr. French's patient was a little girl of six and a half years, who was admitted to Guy's Hospital on August 18, 1910. She had always been a very healthy child, except that since she was twelve months old she had been subject to periodic attacks of vomiting several times a year, attacks which were gradually becoming more intense. In this little girl pubic hair began to develop when she was eight months old, and it increased in amount steadily for some years. There was none in the axillæ or on the face. For six months before admission she complained of pain in the left side of the body. She was found to be a healthy looking child, bright and intelligent, not unduly fat, with undeveloped breasts, but with a remarkable development of pubic hair and with an equally remarkable hypertrophy of the clitoris, which projected between the labia and separated them to a notable extent. A relatively large tumor was felt with ease in the left side of the abdomen, moving up and down with respiration, smooth and free from nodules, but very tender on the slightest pressure. It extended almost to the mid-line, above the umbilicus, and reached from the left hypochondrium into the left flank. There were definite indications that the tumor growth was compressing the lower lobe of the left lung. On September 1st the little patient was operated on, and the mass was found to be a suprarenal tumor, which almost completely surrounded the left kidney, making it impossible to remove one without the other. The suprarenal tumor was of a curious yellow ochre

color, very vascular and very soft. Although it was creeping down all over the capsule of the kidney, it did not invade the latter in any way. The kidney itself looked perfectly normal. The child died a few days later, when numerous secondary deposits, all yellow ochre in color, and varying in size from small dots to growths half an inch in diameter, were found scattered through the lungs. The uterus and ovaries were perfectly normal. Sections of the growth showed columns of large polyhedral cells, mostly arranged in a perivascular fashion. It may be described as a perithelioma of mesoblastic origin rather than a carcinoma.—Lancet, Feb., 1913.

THE TEACHING OF THERAPEUTICS.—My plea, then, is for a broader and for a narrower point of view in the teaching of therapeutics; a broader one to include all that is essentially sound or that can be scientifically tested regardless of origin or school, and a narrower one to exclude all that is outgrown, that savors of polypharmacy and that smacks of the quack. It is further for pharmacologic instruction of the student with the dispensary patient before him, or at the bedside and for a firm union of the teaching of therapeutics with all forms of clinical instruction.—R. L. Wilbur in the Jour. A. M. A.

MR. DOOLEY COMPLAINS that there is too much literary matter in the magazines. He says:

Th' fellow that runs 'him magazines must be growin' rich out iv th' potes an' novelists. But I think they're goin' too far in their greed f'r gold. There must be a limit to their avarice. I don't object, mind ye, to their makin' a fair profit out iv their business iv idjacin' people where to get th' best breakfast food or th' most sparklin' hair dye * * * That's all right. But what I object to is whin I pay ten or fifteen cents f'r a magazine, expectin' to spend me avenin' improvin' me mind with th' latest thoughts in advertisin', to find more thin a quarter iv th' book devoted to lithrachoor.

This, of course, is like Falstaff's one half-pennyworth of bread to the intolerable deal of sack. And Mr. Dooley fears there may be a further decrease in the "bread."

Th' first thing ye know there won't be as many pages iv advertisin' as there is iv lithrachoor. Then people will stop readin' magazines. A man don't want to dodge around through almost impenthrable pomes an' reform articles to find a pair iv suspinders or a shavin' soap.

Therefore, Mr. Dooley thinks the magazines ought to be compelled to mark all their literature plainly, so that the reader cannot be deceived. There are, he admits, magazines which keep literature in its proper bounds. It is not allowed to encroach on the advertising space. The proper proportion between them is, we gather, eight pages of advertising to one of literature. Mr. Dooley admits that this is not bad, but he hopes the time will come when there will arise some publisher bold enough to issue a magazine entirely devoted to advertising. There are some magazines in this fossilized old country which come very near Mr. Dooley's ideal.—Exchange.

TUBERCULOSIS OF THE BONES develops in the epiphyses or the joint synovia. An inflammatory lesion in the shaft of a long bone is never tuberculous.—Amer. Jour. Surg.

THE BILE IN THE LIGHT OF NEWER TEACHINGS.—The humoral pathology of the ancients accorded to the bile an important place in the vital economy. The words "melancholy," "atrabiliar," "choleric" are surviving relics of primitive physiological teachings. There came a time, however, when coincident with the development of modern anatomy considerable doubt was cast upon the value of the liver and its important secretion in the workings of the body. But the development of experimental physiology during the past half century has shown that the bile has many important functions. The real nature of some of these is still veiled in obscurity.

Without describing the properties which are familiar to every student of elementary physiology, it may suffice to point out that the chapter concerning the functional significance of the bile is not a closed one. There have been many obscure problems wrapped up in its multiple capacity as an excretion and as an important digestive fluid. Within recent years these problems have been attacked by many investigators, but no one has contributed more to their solution than has H. Roger of Paris, who presents a discourse on the subject in the "Universal Medical Record," April, 1913. He states at the outset that modern workers have shown that although the bile does not possess any direct power as an enzyme, nevertheless, it has a "zymosthenic" influence, inasmuch as it increases the activity of ferments derived from other sources. It enhances the starch-splitting function of the pancreatic juice and activates the lactase of the intestinal secretion. It also exerts a tractor influence, serving to draw forth certain ferments contained in the cells of the intestinal epithelium. The author, in conjunction with H. Chabanier, has shown that the bile is particularly instrumental in evoking invertin from the intestinal cells.

The function of the bile with reference to the absorption and digestion of fats is alluded to. Bile increases the lipolytic power of the pancreatic juice. It favors saponification. It aids in the absorption of fats. These facts have all been clearly established and have been recognized by physiologists for a long time. But according to recent experiments performed by Roger the bile has other important functions. It plays a part in the digestion of proteins. These tend to form in an acid medium certain insoluble compounds with bile. The precipitates thus formed redissolve in

an excess of bile. The actual purpose of this precipitation and redissolving is as yet obscure.

The failure of bile to reach the small intestine, whether caused by an obstruction in the biliary passages or by an actual cessation of the secretion of bile, gives rise to a series of phenomena that have been recognized for a long time. "Achoelia" was the name first applied more than two decades ago by Cheadle to a condition in which the stools are colorless, contain an excess of fat, and are markedly offensive. The absence of bile from these stools naturally gave rise to the inference that the bile performs the important function of preventing intestinal putrefaction. But Roger now shows that bile is not an antiseptic. When added to broth cultures it does not prevent the proliferation of bacteria. How, then, can one explain this contradiction, which Roger designates "the paradox of intestinal acholia"? This observer has shown that although bile has no antiseptic power, it nevertheless checks putrefaction by "selectively favoring the development of the less active organisms and, very specially, by modifying the functional activities of such bacteria as do flourish." One of the microorganisms whose propagation is favored by the bile is the colon bacillus, while the growth of the anaërobic agents of putrefaction is inhibited. In "La Presse Médicale," Oct. 2, 1912, Roger has shown that bile exercises also an antitoxic function by neutralizing certain poisons arising from intestinal putrefaction. The symptoms of "biliousness" resulting from a defective secretion of bile are thus adequately explained.

Another important function of bile hitherto unrecognized is its action with reference to mucus. Mucin is coagulated by a ferment—mucinae—contained in the cells lining the intestine. Bile inhibits the action of this ferment, with the result that the mucus contained in the upper part of the intestine is present in a fluid state. When mucus coagulates it does so in the lower part of the intestine where there is the least amount of bile. In fact, Roger attributes the formation of the pseudomembranes in mucomembranous enteritis partly to biliary insufficiency, the other factors being an excess of mucus and an excess of mucinase. From these facts there is drawn a deduction of therapeutic importance, namely, that the administration of ox-gall is indicated in these cases. Apart from its effect in preventing the formation of the pseudomembranes, the bile

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would stimulate the function of the liver and the peristaltic action of the intestinal wall.

There can be no doubt that Roger has made a material contribution to both physiology and clinical medicine, by emphasizing the multiple rôle played by bile with reference to the digestion of starch, sugar, protein, and fat; with reference to its antiputrefactive and antitoxic functions; and with reference to certain properties, hitherto unsuspected, in controlling the physical condition of the intestinal mucus. The bile thus provides an illustration of the wise economy of nature in imparting many different functions to one digestive secretion.—*Med. Record.*

ACID FRUITS should be strictly forbidden in urticaria, erythema and acute eczema.—*Urologic Review.*

THE HISTORY OF MEDICINE IN SCANDINAVIA.—The publication of a series of essays on the history of medicine has recently been undertaken by Dr. V. Maar of Copenhagen. The first contribution by Professor Finnur Jonsson¹ deals with the history of medicine in Scandinavia in general, and in Norway and Iceland in particular. There does not appear to have been any systematic study or record of disease, or any published treatise on the subject apart from Henrik Harpestraeng's two text books on treatment with herbs. Even these contain much information which must evidently have been culled from other than Scandinavian sources, and the writer, who died in 1244 A. D., has apparently been credited with other works than his own. But the "Sagas," both historical and fabulous, abound in tales of many diseases and wondrous cures. The latter were commonly effected by the miraculous skill of saints, or by the aid of women, who practiced medicine more often than men. While venereal disease was apparently unknown, and diseases of the reproductive organs were rare, the tale of disease, infectious and otherwise, is long, and it is little wonder that Vikings seldom survived the age of 50. At this age the bard Eyvind, who lived about 961, complained of the sorrows of declining years. Epilepsy is often mentioned, and was included among the diseases which warranted the breaking of an engagement. For this reason a maid of Trondhjem concealed her attacks from her betrothed, who was awakened one night by her labored and choking respiration, cramps and unconsciousness. She subsequently confessed that these attacks recurred every month, and had not yielded to doctors, medicine or witchcraft. Accounts of many kinds of insanity are numerous, and the hereditary nature of mental diseases was recognized. The fate of the lunatic must indeed have been sad, for vigorous flogging was prescribed to drive out the devil which possessed him. He was also bound and kept locked up. The great chieftain and physician, Hrafn Sveinbjörnsson, who died in 1213, treated lunatics by burning their heads in several places, a procedure which doubtless reduced the incidence of insanity in his neighborhood. Temporary insanity was also fairly common, and no less a personage than King Sigurd Jorsalfar, who died in 1130, was subject to attacks, presumably the outcome of chronic intoxication. During his first seizure he thought he saw a fish swimming in his bath water. Violent laughter and great restlessness were provoked on this occasion, and at a later date he flung a costly book, printed in letters of gold, into the fire, boxed the Queen's ears, and assured her that goats' horns were

sprouting out of her forehead. His attacks did not last long at a time, and were troublesome only in the later years of his reign. The term "Bersærker" was originally applied to fighting men clothed only in a bearskin, but it was soon given to any warrior seized with wild rage. The primitive, uneducated Viking seems to have been subjected to fits of passion, when he rushed out roaring like a bear, biting the edge of his shield, foaming at the mouth, and hewing down every object that opposed him, whether it were man, beast, trees or stone. When the attack was over, he would collapse completely. These "Bersærkers" sometimes formed bands which raided the neighboring districts and were a much dreaded scourge. It has been suggested that "Bersærker" fury was due to the consumption of a certain fungus; and this view was evidently accepted by Kingsley in "Hereward the Wake." Professor Jonsson is sceptical on this point, and interprets the condition as a result of contradiction on the minds of primitive savages; for the attacks were apparently always started by some external factor such as unexpected opposition. The induction of abortion must have been practised occasionally, judging by the laws against this offence in the fourteenth century. But it is not likely to have been common, for easy virtue on the part of the Viking ladies was not of necessity censured strictly, and the prolific mother was held in high esteem.—*Brit. Med. Jour.*

IN ALL FORMS OF SYCOSIS the hair must be kept clipped as short as possible.—*Urologic Review.*

WARNING AGAINST NON-SCIENTIFIC DIET SYSTEMS.—The U. S. Department of Agriculture has recently had called to its attention, by letters from people all over the country, serious misstatements as to the effects of foods or certain diets recommended by self-styled "experts in dietetics." As a result of these letters the Department specialists have secured the literature and recommendations of a number of these people and have made a careful study of the things they recommend as diets.

The specialists of the department have issued the following statement covering this matter:

"In view of the wide spread of literature and advice of so-called 'diet experts,' it seems desirable to warn people against adopting the dietary recommendations of those without real scientific standing in the community. Some of the advocates of freak diets are sincere, but are themselves deluded, while others are fakers, who seek to make monetary gain by advising peculiar systems of diet. Neither class can offer trustworthy advice. In most of the recommendations of these self-established 'experts' there is hardly a shadow of reason, though they may seem plausible. One of their methods of reasoning is to use isolated and often unrelated facts of science as evidence that their peculiar system is of value. That is, they generally start out with a certain idea, and then strive to prove that they are right by seeking data which seem to establish their theory; but they completely ignore statements in current and historical scientific literature which would negative their contentions. In other words, they completely overlook or do not see the importance of discoveries by scientists which go counter to what they want to believe. It would be easy, following this same system of taking isolated facts away from their context, to produce just as much of the same

kind of evidence that these 'food experts' are wrong as they adduce to prove that they are right. In neither case, however, would the method lead to real scientific conclusions.

"As an example of their methods of reasoning can be cited their use of the fact that someone tried to raise rabbits wholly on cooked food. The rabbits did not thrive on such a ration, nor could it be expected that they would on a diet purely artificial to such animals. From this the 'pseudo' expert draws the deduction that because the rabbits could not live wholly on cooked food, human beings should confine themselves to raw food. No such deduction is warranted. Raw food is natural to rabbits, and this is perhaps a fortunate provision of nature, because the average rabbit would probably have a good deal of trouble lighting a fire or a gas stove to cook food; but it does not follow that man, who has proved cooked food wholesome by uncounted centuries of use, should give it up because of someone's theory.

Raw Food.—"Many of these so-called diet systems lay great emphasis on raw foods. Now, there is no objection to anyone's eating raw food if he likes it, or finds after experiment that it agrees with him, provided it is of good quality, free from contamination, and wholesome. The truth of the matter is, however, that man's chances of health are best when he eats with moderation a diet made up of clean, wholesome, ordinary foods, well prepared in the usual ways. Such a diet will include some articles to be cooked and others to be eaten raw, such as bread, cereals, fruits, vegetables, meat, fish, milk, butter, cheese, eggs, etc. These articles should be of good quality free from dirt (visible and invisible) and adulteration, and well prepared.

"As a general proposition, raw food is not cleaner than cooked foods. Proper cooking sterilizes foods, and so renders innocuous pathogenic bacteria and other organisms possibly harmful. Raw foods have to be very carefully washed and cleaned before eating, and as a general rule simple washing, while it will get rid of most of the dirt, will not remove all the bacteria, insect eggs, spores of fungi, etc., that may adhere to them. If the systems of pseudo-reasoning followed by some of these diet experts were logical it would be possible to draw the conclusion that no one should eat lettuce or other salads, or raw vegetables and fruits. This would not be warranted by true science.

"In some of the literature circulated by the advocates of raw food their correspondents are urged not to eat animal foods, because they say meat is filled with bacteria. This is not true. The surface of meat is not sterile, but the interior is, except in rare cases. We do not eat raw meat, except dried beef, or something similar, but cause it to be cooked, and this sterilizes it. In most cases where people have suffered, or think that they suffer, from eating meat or any other normal article of diet, the trouble lies not with the actual article, but either in the imagination of the consumer or in the fact that the food has not been kept clean, or properly prepared and properly handled after it is cooked.

The Fallacy of the Enzymes and Particular Chemical Substances.—"Several of these food experts base their argument for a raw food or other specialized diet on the theory that raw food supplies the body with necessary enzymes, or that a certain food, such as whole wheat bread, supplies lime or some other special substance. If the American people lived wholly on

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cooked food and ate no fruit or drank no raw milk, it might be necessary to advise them to eat some foods raw, for when clean and of good quality, such things are wholesome. The body, however, normally supplies all the ferments (enzymes) it requires, and the average mixed diets of Americans give them all the raw food that they require. Similarly, if the American people ate nothing but wheat, it might be necessary to advise them to eat whole wheat rather than fine wheat flour, in order to get some of the substances excluded from the flour by bolting. Recent investigation indicates that there is a valuable substance in bran, which is lacking in the interior of the wheat kernel. This substance, called by some vitamine, is, however, present in many other foods, and there is every reason to believe that an ordinary mixed diet supplies all of such material which the body needs. Whole wheat bread is wholesome and palatable and affords an easy way of securing variety in the diet, which is desirable as well as pleasing. The average American who usually gets plenty of the food constituents he needs in his other articles of diet need not feel compelled to eat whole wheat bread exclusively, simply to supply one peculiar element.

"In the case of the people who decry polished rice, most of them base their assumption that Americans ought not to eat it, on investigations made in oriental countries where rice forms one of the chief staples of a very limited diet, and practically the only starchy food. People who live mainly on rice might be expected to need certain elements that are in the part of the rice

that is polished off. Americans do not live on a diet limited to rice; there is, therefore, no logical reason why they should not eat polished rice if they like it, or should not use the unpolished rice if they prefer it. Both are wholesome and valuable.

The Human Race Has Survived.—"If the deductions of many food faddists accepted as facts were really operative, it would be difficult to explain how the human race had survived. The race should have expired very soon after man had progressed enough in intelligence to begin to exercise any choice in his diet and to cook his food. The contrary holds true, as civilization had advanced from the time when man began to cook and otherwise prepare his food.

The Danger of Curative Treatment by Mail.—"Many of the people who offer dietetic advice for sale undertake to recommend a diet that will cure diseases without ever seeing the patient. The average man talking about his own illnesses frequently imagines symptoms, or describes them so inaccurately that they are not absolute guides to the physician. In many cases incipient serious ailments or local troubles which give no indication of their presence by pain or discomfort, are discovered by the physician in his laboratory, and relief can be given them which could not be promised later. Very few people indeed would be able to describe their symptoms in words so accurately that the conscientious physician would feel safe in making a positive diagnosis or laying down a method of treatment. Many of these sellers of food information, however, undertake to diagnose trouble and advise a complete remedy purely on the patient's own description of what he believes is a serious condition.

Any Change Sometimes Seems Beneficial.—"In many cases people, on beginning a radically new diet, whether it has direct curative value or not, gain or think they gain a benefit. Any marked change in diet or cooking would produce the same effect, because change itself is often a benefit. The man or woman undertakes the new diet feeling convinced that it will help some real or fancied ailment, and expects results so strongly that imagination supplies them. Some of the cases so benefited are simply transient forms of digestive disturbances. Most of these feelings or discomfort quickly pass by themselves, if we do not dwell upon them and worry about them; but if the person tries a new diet he is very apt to attribute all improvement to that diet, whether it has any direct bearing on the case or not. In cases of serious digestive disturbances, sufferers should consult a physician of known ability and known standing in their community. To submit such cases for treatment by mail is as foolish as it would be for a man having a complicated and highly specialized business trouble to ask someone who had never seen his factory, and knew nothing about the business except the data he could supply in answer to a set of questions, to supply him with a positive remedy at long distance.

"Much of the advice on diet which has passed from individual to individual, and much of the supposed scientific advice now being sold for a price by some of the food advisers, is really little more than folk lore. A great many of the statements which are used as arguments by the experts for their diets have been traced by the Government specialists, and found to come from works on diet written so long ago as to be no longer considered of value, except to the student of the history of dietetics, or else they have

been separated from qualifying statements which would make the interpretation given them by the commercial users wholly unwarranted.

Stop Worrying About Your Body.—"These circulars of misinformation about diet find their prey principally among people who are always fancying that they have some complaint. If people remain in good physical condition year after year and observe no marked change in weight, seem in good health and spirits, and are eating any simple and normal mixed diet, they have no need to worry about their food.

"People can expect to be lighter in weight in summer than in winter. As a person grows older he should begin to cut down the amount he eats and depend on a less complex and simpler diet. It is often said that when a person passes forty he begins to need a different diet. The reason given is that he does not exercise so energetically as he did, and consequently does not need the same amount and kind of food that was required to keep up his energy for more active physical work.

"If you like raw food better than anything else, eat it. If you like bread and milk twice a day, eat it. The main thing, as one grows older, is to eat in moderation and then, as always, to see that what you eat is clean and that the cooked food you eat is originally in good condition and that it is well cooked. If you eat raw vegetables and fruits and raw milk, take precautions to see that they are clean before they enter your system. If something really disagrees with you, and the fault lies actually with the article rather than with the method by which it has been kept or cooked, stop eating that kind of

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food. If you experience serious discomfort which persists, consult the best physician you can discover.

"As a general proposition, be wary of people who offer to give you advice or to cure you without ever seeing you. Finally, bear in mind that each human body has individual characteristics, and that a diet which admirably suits one man who lives in a certain location and does a certain kind of work may not be adapted to another individual living in a different climate and doing a different kind of work.

"No advice is better than the old 'moderation in all things.'"

A MILK DIET rigorously adhered to for a couple of days will often work wonders in bringing about the amelioration of acute dermatoses.—Urologic Review.

THE REMAINS OF NAPOLEON.—In the lives of saints it is often stated that the body was found incorrupt long after death. For instance, the body of St. Charles Borromeo, preserved in a crypt in the great cathedral of Milan, is shown to the curious—for a consideration. It is said to be incorrupt, but a very cursory inspection shows that it is mummified. In other cases the flesh of the holy person has been transformed into adipocere. It is a fact, however, that decay may be delayed sometimes for centuries by natural causes, and thus there are many cases of the bodies of persons who have no claim to a place in the calendar being found incorrupt. In a recent number of the "Journal Médical de Bruxelles" there is an article by Dr. Max Billard on the exhumation of Napoleon's remains in 1840. Although, owing to the lack of the necessary materials, it had been impossible to embalm the body after death, the remains were found in an almost perfect state of preservation. They were enclosed within four coffins, one within the other, one of mahogany, one of lead, a second of mahogany and one of tin-plate. When the last of these was opened the whole body was seen as if enveloped in a transparent cloud. The head of the conqueror rested on a pillow. The large head with the lofty brow was seen covered with yellowish, hard and very adherent integuments. The same condition was observed about the contour of the orbits, on the upper edge of which the eyebrows were visible. Under the eyelids could be seen the eyeballs, which had lost little of their volume and shape. Some hairs were still seen at the free edge of the eyelids. The bones of the nose and the integuments covering them were well preserved; the nostril and the alae alone had suffered. The cheeks were puffy; the integuments of that part of the face were remarkable by their softness and suppleness to the touch and the whiteness of their color. Those of the chin were slightly bluish. The chin itself showed no change. The thin lips were parted; under the upper one, which was a little raised on the left side, were seen three extremely white incisor teeth. The hands showed no change; "the skin seemed to have preserved that particular color which only belongs to that which has life." It is interesting to recall that among those present when the remains were brought back to Paris was an old man of 74, representing, among so many heroes of the sword, that war-surgery in which he had won such renown. This was Larrey, clad in his old uniform, and wrapped in his campaigning cloak, leaning on the arm of his son, Hippolyte. To him it may be remem-

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bered Napoleon left £4,000 as to the most virtuous man he had known. The remains are now enclosed in five coffins, made respectively of tinplate, mahogany, lead, a second one in lead separated from the other by sawdust and pieces of wood, and one of ebony. For a long time the face of Napoleon was shown every year on August 15th, the anniversary of his birth. Crowds passed before his tomb; the upper part of the coffin was raised, and through a glass could be seen the face of the emperor. But it is to be presumed that at length signs of decomposition became visible, and the order was given that the face should no longer be shown. M. Jean Richepin, the poet, has described what he saw. In a lecture delivered on January 25, 1909, he said: "The general (M. Mellinet, then Governor of the Invalides) took us down into the crypt. . . . My father took me in his arms, raised me in the air, and I saw the emperor. I have never forgotten that sight. I was eleven years old. What is seen at that age makes a deep impression, and nothing can remove from my brain that extraordinary image—the eyes closed, the beard slightly grown, the face of the whiteness of marble, on which spread some yellow spots which seemed a bronze. When there mingle in my memory that face of wax, showing some signs of decomposition which I have seen, and those eyes which I have seen, I see the emperor truly as if I had known him." Dr. Billard attributes the preservation of the remains during their long repose at St. Helena to the hermetic closure of the coffins in which they were enclosed, preventing the access of the micro-organisms—the real "conqueror worms," to use Edgar Allan Poe's phrase—that cause decomposition.—Brit. Med. Jour.

BEWARE of unilateral psoriasiform patches upon the palms, especially of women. They are often syphilitic.—Urologic Review.

THE SURGEON AT SEA.—In considering fields of medical endeavor insufficient attention has been given to the work of the ship's surgeon. As a general rule, the young physician recently graduated from his medical course, feeling desirous of an ocean voyage or some remunerative recreation, seeks to secure benefits by taking a position as a ship's doctor. In return for his technical training and service he is able to secure a trip either without compensation or with a very small emolument.

With the evolution of transatlantic liner to the huge proportions that are capable of accommodating entire villages, as far as population goes, it is but reasonable that ample provision should be made for medical attendance. The accident rate among employees of sea-going vessels is sufficiently high to warrant the employment of a surgeon by the company in order to give adequate attention to the crew. In addition to the men below decks, the large voyaging population requires some systematic plan for caring for its health during the period of transportation.

At the present time many of the larger steamship lines give a salary of \$50 a month to the ship's doctor, in addition to the opportunity of charging small fees to the passengers of the first and second class. On the larger vessels, where the work required of the ship's surgeon is more onerous, the salaries vary from \$60 to \$85 a month, with many applicants seeking to fill the positions.

The entire question of ship sanitation should come within the purview of the chief medical officer of the large vessels. He should be a medical health officer as well as the ship's surgeon. If employed by the company, his services should be devoted to the interests of his employers in safeguarding the health of the crew and attending to their various ailments. As a supplementary vocation he should be enabled to practice as occasion demands among the passengers of the first and second class, who may perchance require his professional service in either a medical or surgical capacity.

One frequently reads of the sudden operation which must be performed for the relief of a strangulated hernia or the removal of a diseased appendix, when the imagination of the reporter pictures the emergency operating room with the victim receiving an anesthetic at the hands of some volunteer passenger, probably a physician and possibly a layman. The assistants at the operation are recruited from among the passengers who chance to have a physician's degree. The operations are performed under stress and excitement, and the fullest opportunity for recovery is afforded the patient insofar as a meager equipment and untrained operators can offer. This, to be sure, does not characterize the condition of all vessels, but it should not exist on any ship carrying the floating population which to-day is housed on our great trans-oceanic passenger vessels.

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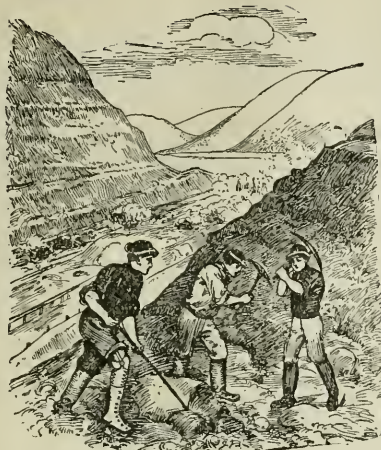
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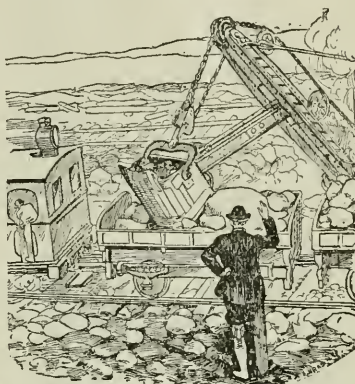
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some of the smaller towns there may be two or three physicians to 300 inhabitants. This is somewhat suggestive of the ratio that exists in normal distributions of population. It is obvious that the nature of the traveling population is not as cosmopolitan nor as representative of all social strata as is a similar large group peacefully attending to normal occupations. It is patent, however, that to charge one physician on board a ship with a responsibility of caring for the physical health of 3,000 human beings, or even 5,000, is to supply inadequate medical service.

In order to establish the grade of ship's doctor as one worthy in dignity, honor and distinction, it is necessary to establish rigid requirements for this position. Only medical men who have secured a good technical training, followed by practical experience in a hospital, should be permitted to serve in this capacity. The position should not be designed to give recreation, even to the most deserving physician. It must be raised to the standards of service in the navy, in order that it may become a worthy branch of professional life. The tendency of the time is to make the ship's surgeon a man of power and a valuable adjunct to the successful maintenance of health and comfort during voyaging. The story of the ship's surgeon has not been written. It is fraught with difficulties, but laden with opportunities. It requires judgment, discrimination and skill. It is a noble work, if it be well done.—*Amer. Journal Surg.*

THE BEST RESULTS in lichen planus are obtained by pushing arsenic until its physiological effects are obtained.—*Urologic Review.*

IN DETERMINING between malaria and pyogenic infection as the cause of a chill and pyrexia a leucocytosis of 20,000 or less does not necessarily exclude paludism; it is sometimes found at the outset of a malarial attack.—*Amer. Jour. Surg.*

THE CAUSE OF ANEMIA IN MALARIA.—Among the most interesting chapters of recent work on malaria is that concerned with the origin of the blood changes typical of this disease. Beside the destruction of red corpuscles through direct development of the malarial plasmodia in them, there have been suggested several accessory causes of the anemia in this affection, prominent among which is that of a toxine prejudicial to the cells, circulating in the blood. Recently Wade H. Brown (*"Jour. Exper. Med.,"* July, 1913) has presented an account of researches which lead him to regard the pigment hematin, set free from hemoglobin by the malarial parasite, as an active factor in the production of many, if not all, of the important blood changes observed in the various forms of the disease. Injection of only ten to twenty milligrammes of hematin (to the kilogramme of animal) into rabbits on several successive days was found to produce a well marked anemia, consisting both of reduction in the number of red cells and of the presence of immature cells. The mechanism of this destruction of red cells could not be definitely made out; some degree of hemolysis was often noted, but microscopic study of the tissues showed that red cells were also killed without disintegration, numbers of them being found included within phagocytes.

In addition to its effects on the red cells, hematin was also found by Brown to induce changes in the leucocytes, platelets and coagulation time. The first were usually increased in number, as in the pernicious forms of malaria, and there was always a high percentage of large mononuclear cells—a characteristic feature of malarial blood. The effect of a single injection resembled the cycle of changes occurring in the leucocytes at the time of the malarial paroxysm. The platelets were found to be markedly reduced in number by hematin, and ultimately a prolongation of the coagulation time and the bleeding time took place. The resulting tendency to hemorrhage has its counterpart in the well recognized class of hemorrhagic cases of pernicious malaria. Thus, so numerous are the points of resemblance between the effects of hematin and those of malaria on the blood that a partial causal relationship of the former to the latter appears, to say the least, probable.—N. Y. Med. Jour.

PYELOGRAPHY will sometimes demonstrate the cause of a renal colic when radiography, cystoscopy and examination of the separated urines have shown nothing.—Amer. Jour. Surg.

LAY IGNORANCE OR INDIFFERENCE, WHICH?—A press report states that a man was recently arrested for the seventh time in Philadelphia because his broken nose caused a resemblance to a well known crook. Evidently the victim of these arrests does not know that a simple prosthetic operation would straighten the incriminating organ so as absolutely to destroy his unlucky likeness to a malefactor. It does not seem possible that a man so afflicted can be aware of the surgical possibilities in his case, but it may be a matter of pure indifference after all. We see men almost daily with small but unsightly birthmarks, to say nothing of victims of chronic hoarseness, visual defects, difficulties in breathing and other disorders readily amenable to treatment and cure, who go through life handicapped, although they may have sufficient money to consult a specialist privately, and, if not, should know that at any one of a hundred odd dispensaries relief is obtainable. How many victims of chronic constipation experiment with one patent remedy after another till they have induced a permanent intestinal stasis with all its refractory, painful and dangerous symptoms, without ever dreaming of a visit to a physician? Gonorrheal patients accept a prescription from a

friend, or buy some remedy of the century before last at the nearest druggist's, with the practical certainty of acquiring a stricture and eventually infecting a wife who is doomed to become the saddest and most hopeless kind of an invalid. There should be some way of educating the laity as to the necessity of consulting a qualified practitioner for what are now deemed trifles, but which we know often to be symptoms of the most serious import.—American Medicine.

THE WAITRESS REPLIED—A couple of drummers, having a few hours' layover in a small town, decided to dine at the village hotel. On looking over the bill-of-fare they noted that young "fry" was "special" for that meal, so one of the men turned to the pretty little waitress and asked:

"How's the chicken?"

The young lady blushed and then answered:

"Oh, I'm all right. How are you?"

THE ABSENCE, for a long period of time, of all signs of local infection in a case of purulent prostatitis, is strongly suggestive of a calculous etiology.—Amer. Jour. Surg.

THE NEW YORK SKIN AND CANCER HOSPITAL.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a fifteenth series of clinical lectures on diseases of the skin in the out-patient hall of the hospital on Wednesday afternoons, beginning November 5th, 1913, at 4.15 o'clock. The lectures will be free to the medical profession, on the presentation of their professional cards.

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IF A RADIOGRAPH of the unemptied bladder, exposed with the patient in the level supine or reversed Trendelenburg position, shows a shadow or group of shadows in the region of the neck of the bladder, and a second radiograph, exposed with the patient in the Trendelenburg position and the x-rays passing in the same relative direction, shows the shadow in the same place as before, the stone or stones are fixed in the prostate or the prostatic urethra or in a diverticulum behind the prostate.—Amer. Jour. Surg.

MANY A CASE OF NEGLECTED SCABIES is entirely overlooked owing to the predominance of the secondary eczematous symptoms.—Urologic Review.

MEDICINE AND LAW are alike in this respect, that neither can be thoroughly established. Good laws cannot be enacted on the spur of the moment; they represent the gradual growth of a social habit or custom, so that by the time the law is ready to be enacted by a legislative body it has already become a practical law among the community.

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IN ALL CASES OF stubborn eczema about the fingers or toes it is as well to bear in mind the possibility of ringworm.—Urologic Review.

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LEUCORRHEA

By Charles J. Drueck, M.D., of Chicago, Ill.

LEUCORRHEA is a familiar complaint in every practitioner's work and is a symptom of many disturbances both pelvic and systemic. In this paper we can consider only the former and shall begin with the vagina.

Vaginitis.—Vaginitis is usually found as a result of (1) Gonorrhea, (2) of pyogenic organisms following traumatism from irritants or operation, or (3) is sometimes associated with pregnancy or old age. Gonorrhea is the most common cause. There is always an associated vulvitis (vulvo-vaginitis) and sometimes it remains so localized for a long while but in other cases it spreads rapidly to the uterus, tubes and peritoneum. The urethra is also often affected and by extension the bladder.

The symptoms vary somewhat with the etiology. In gonorrheal vaginitis the symptoms are those peculiar to gonorrhea, i. e., profuse yellowish discharge and a feeling of fullness and dragging. In the vaginitis due to pregnancy the tissues are hot, red and swollen. The discharge is curdy and causes intense itching, which is not only distressing but at times is quite intolerable. In the senile vaginitis the symptoms are much the same. The changes in the vaginal walls are, however, limited to localized areas which sometimes are quite abraded and the denuded surfaces may adhere and thus form septa in the vagina which obliterate its lumen.

Treatment.—The vagina should be opened with a tubular speculum that the whole vagina and the cervix may be seen. In the early stages the rugae appear swol-

len and red and the sulci are bathed in pus. In the older forms the disease appears in patches with less secretion. By frequent hot antiseptic douches much irritating excretion and debris are carried away and regeneration stimulated. The water should be 105° F. and a little more hot water added after one-fourth of the solution has been used, thus raising the temperature to about 120° F. The douche should be given with the patient recumbent with the hips on a bed pan.

All except the mildest cases need local treatment by the physician. In ordinary cases I give the patient a hot douche, then carefully dry out the vagina, removing all masses of muco-pus or shreds that I may find, then insufflate an astringent antiseptic powder, carefully covering all of the vaginal surface. I begin at the vaginal vault and work toward the outlet, gradually withdrawing the speculum. I allow the powder to remain twelve hours and then use the cleansing douche. This treatment is repeated in three days.

There are of course all grades of infection and in the more virulent types the powder treatment is not sufficient. I then swab the whole vagina and cervix thoroughly with a silver nitrate solution until the membrane blanches white, being careful not to slight any part of the vagina, but do not let any of the solution run outside because it will burn. I generally anoint the vulva well before beginning the treatment to protect it against possible accident. This treatment is painful and it is usually necessary for the patient to remain in bed for the next few days to lessen the aching in the pelvis. In four to six days the burned epithelium separates as a vaginal cast and a thin purulent discharge is seen

which, however, is relieved by douches. Sometimes a single course of this treatment will bring about a cure or it may require repetition. If another course is necessary an interval of a month should be waited.

Cervicitis.—In all or nearly all cases of vaginitis a cervicitis is associated and needs attention even after the vaginitis has disappeared, because cervicitis is one of the most obstinate gynecological disturbances. The infected cervix congests and hypertrophies enormously. The mucosa is everted and the glands pour out a tenacious muco-purulent secretion which chokes up the cervical canal and flows into the vagina. The secretion accumulates in the vaginal vault while the patient is recumbent and on arising is often discharged en masse. This feeling of uncleanness is embarrassing to the patient and may necessitate the constant wearing of a napkin. This discharge is distinguished from other forms of leucorrhea by its stringy white of egg appearance instead of the curdy, milky or creamy discharge of vaginitis. Sometimes the diseased cervical glands become occluded and cystic. This change may occur in either the vaginal portion or within the canal and the whole cervix may be honeycombed. The continued discharge weakens the patient and the presence of the infection in the cervix is a menace to the uterus and tubes. The presence of cervicitis, however, does not necessarily mean a similar disease in uterus or tubes.

Treatment.—Cervicitis is a stubborn disease and yet good results may be obtained by carefully planned details of treatment that are patiently carried out. The principals of treatment are (1) disinfection by means of local antiseptic applications, (2) douches to remove debris and limit the extension, (3) puncturing of all cysts to deplete the tissues and allow access to the deeper tissues.

The patient is placed in the dorsal position, the cervix exposed and wiped thoroughly clean. The mucus plug is removed from the cervical canal and the canal is slightly dilated. If any cysts large or small are found they should be opened widely and drained. If they are large they should be curetted with a sharp curette. A suppository is then placed against the cervix or crowded into the canal and retained in position with a lamb's wool tampon which has been previously dusted with an antiseptic powder. This should be left in place twelve hours. Then remove the tampon and give a two quart antiseptic douche. After this the hot vaginal douche should be given night and morning. This treat-

ment should be repeated by the physician twice each week for a month or two and is usually very satisfactory. Where the patient has a lacerated cervix the suppository may sometimes be pushed into the cervical canal. In aggravated cases which do not respond to this treatment it is necessary to amputate the cervix to remove the diseased gland bearing field.

Endometritis and Metritis.—In some, but fortunately not all cases, the infection passes into the uterus and sets up an endometritis and metritis. Endometritis implies that the inflammation is limited to the lining membrane but clinically we seldom if ever find it so limited. The same nerves, blood vessels and lymphatics serve all structures of the uterus and all are alike subject to the various nervous and vasomotor changes. Infectious products within the uterus are carried through the musculature to the minute lymphatics on the serosa and then through the broad ligament. Normally the cavity of the uterus is sterile and the constant flow of mucus and lymph from the endometrial glands although imperceptible is sufficient to prevent any of the micro-organisms usually found in the vagina from entering the uterus. Infection is therefore (1) mechanically introduced into the uterus by unclean instruments, (2) by decaying material of a miscarriage or labor or (3) by the gonococci which can develop in the presence of the lactic acid bacillus normally found in the vagina.

Gonorrheal endometritis sometimes called specific endometritis, is the most frequent form and unless mixed with other germs is subacute in character. It may spread along the endometrium to the fallopian tube, causing dire distress, but is rarely taken up by the lymphatics and carried into the general system. The gonococci mixed with other germs (staphylococci or streptococci) make a very virulent infection.

Septic endometritis, and by that we understand infection by staphylococci or streptococci, although especially the latter is a virulent infection, usually follows confinement or miscarriage, and is far reaching in its complications and sequelae. The micro-organisms permeate all structures and lymphatics of the uterus, tubes, ovaries and the cellular tissue and finally pass into the peritoneum. In this septic form the mucosa sloughs off or may be covered with a diphtheroid deposit. This destruction usually occurs in patches but may be diffuse and large pieces of mucosa or even muscle wall are cast off.

Each case presents its own peculiarities according as glandular or interstitial tissue

is involved. Where the glandular structures chiefly are affected the secretion is abundant and is retained until decomposed because of the occluded cervical canal. The odor then is very offensive and suggestive of malignant disease. This condition is sometimes called benign adenoma. In other cases both the glandular and connective tissues are hypertrophied and a fungoid condition develops. In the later stages the endometrium is thin and the glandular structures are obliterated. This is the condition found in hyperinvolution following pregnancy, in old age and in the late stages of chronic localized inflammation. At this time the discharge may be abundant but it contains few lymphoid elements. Hemorrhage is scant and the blood tends to coagulate because of the lack of lymph. The discharge is thin and purulent, sometimes bloody and erodes the vagina and vulva. The uterine canal is hypersensitive and dysmenorrhea may occur.

The pain of endometritis is constant; a dull ache in either the uterus or the region of the lumbar plexus which sometimes radiates through the pelvis and thighs. When obstruction of the cervical canal exists or there is flexion of the neck the pain is spasmodic and if the peritoneum is involved the pain is lancinating, but as these same nerves are affected in all pelvic disturbances this same character of pain is complained of in many affections and is not pathognomonic of endometritis.

The discharges of endometritis destroy the spermatozoa and these women are usually sterile or if conception occurs the endometrium furnishes but a poor support to the ovum and abortion usually occurs early.

Menstruation is frequently suppressed for a time and in septic endometritis it may not reappear. The suppression of lochia or menstruation always betokens serious infection. Menorrhagia and metrorrhagia usually supervene. In chronic endometritis the menstruation is more profuse and the period more protracted. Frequently it amounts to a menorrhagia. There is also sometimes a hemorrhage between the usual menstruation.

Fever is slight except in the acute cases when it may be high (104° to 105°) and is accompanied by frequent chills. Among the reflex phenomena are vortex or occipital headache, irritation of the bladder and rectum, nausea and attacks of hysteria, melancholia or neuresthenia. The patient soon becomes anemic and weak. All of these symptoms are aggravated by conditions that determine a venous congestion to

the parts, such as long standing or long walks, constipation and the menstrual periods. All of the subjective symptoms seem out of proportion to the local findings.

Examination discloses an edematous cervix perhaps eroded and granular. The uterus is large, boggy and tender. A thick glue like discharge escapes from the os but if this is wiped away the characteristic thin, bloody or purulent discharge will be seen. The cervix is partly open. Depending upon which part of the organ is involved the cervix may not be appreciably affected or the uterus may be hard, of normal size and not tender. In the late (atrophic) stage of the hypertrophic endometritis the uterus may be diminished in size and the discharge clear. Examination with the uterine sound determines a patulous cervix and a very sensitive corporeal endometrium. Such an examination is very painful and is followed by bleeding because of the fragile blood vessels. Microscopical examination of the scrapings of the uterus are sometimes necessary to differentiate the various forms of endometritis or to exclude other lesions. Such a curettage (exploratory curettage) may be accomplished without an anesthetic, because of the patulous cervical canal.

Treatment.—In acute endometritis, rest in bed, saline laxatives, a plain absorbable diet, hot sitz baths and hot vaginal douches are all that is needed. When the disease is complicated with other disturbances of the uterus or adnexa they will, of course, need attention primarily. In the non-septic cases local treatment should be deferred until the acute stage with pain and tenderness has passed unless there is some positive indication for special treatment.

In the septic forms with continued fever it is necessary to douche repeatedly under strict asepsis. When intrauterine douches are given the return flow must be watched because there must be unimpeded exit. Usually the cervical canal is patulous enough to allow a ready return flow but if it is not a return flow douche must be used. Serious and even fatal accidents have occurred because of neglect of this precaution. When the temperature is high an icebag over the hypogastrium is soothing and reduces the temperature but it must be removed as soon as the fever falls.

All infections consume the patient's vitality and in these protracted and virulent poisonings it is well to urge a simple but highly nutritious diet. After the acute stage has passed constitutional measures are of much importance. Absolute sexual rest, a carefully regulated diet, close attention that

the bowels are loose or free, regulation of the hours of work and exercise so that the patient is not fatigued by prolonged standing or walking. Comfortable but loose fitting clothing, plenty of fresh air and sunlight and if possible a change of scenery.

438 East 46th Street.

ULCER OF THE CORNEA*

By R. S. Killough, M.D., of Amarillo, Texas

An ulcer of the cornea may be defined as an infected open wound. The introduction of the micro-organism into the corneal tissue may take place in one or three ways: First, it may be introduced from without, as by a direct injury of the cornea. Micro-organisms cannot pass through an intact epithelial layer. Any disturbance in the integrity of the corneal epithelium from any source whatever, by permitting the entrance of micro-organisms present in the cul-de-sac, may result in an ulcer. Second, micro-organisms may reach the cornea by way of the blood stream (Collins). Third, micro-organisms may reach the cornea by passing into it from contiguous tissue.

If the scrapings from a corneal ulcer be examined bacteriologically, an almost pure culture of some micro-organism will usually be found. The following are the organisms most commonly present, and the types of ulcers they usually produce:

1. *Staphylococcus*.—Frequently present in corneal ulcer and is usually introduced by an injury to the cornea. There is nothing characteristic in the resulting ulcer. Hypopyon may accompany it.

2. *Pneumococcus*.—The usual cause of the so-called serpinous ulcer. The infection is frequently introduced by a blunt, central wound of the cornea, and is frequently associated with dachryocystitis.

3. *Streptococcus*.—Causes a rapidly spreading ulcer, frequently ending in the sloughing of the cornea, and often the result of malnutrition.

4. *Gonococcus*.—Resulting ulcer is always secondary to the infection of the conjunctiva, and is more apt to occur in adults than in children. The ulcer has a tendency to increase in depth and perforate the cornea.

5. *Morax-Axenfeld Bacillus*.—The resulting ulcer is usually of the marginal type and is associated with conjunctivitis.

6. *Koch-W Weeks Bacillus*.—The resulting ulcer is superficial and marginal in type usually, and is accompanied by conjunctivitis.

7. *Klebs-Loeffler Bacillus*.—The resulting ulcer is always secondary to the infection of the conjunctiva.

8. *Tubercle Bacillus*.—The resulting ulcer is often an extension of a lesion of adjacent tissue.

9. *Bacillus Ulceris Corneae*.—The resulting ulcer is marginal, crescentic and often multiple.

Soon after the introduction of micro-organisms into the cornea, a ring of grayish discoloration appears surrounding the lesion. This ring is made up of polymorphonuclear leucocytes and is called an infiltrate. Over this area the epithelium soon exfoliates and an infected wound is the result—in other words, an ulcer. Its walls are uneven and clouded. The crater may be filled with debris, consisting of broken-down corneal tissue and pus cells. The ulcer may now progress in the direction of its depth or laterally, and the direction of its lateral extension is indicated by the position of the most dense area of infiltration. If the ulcer deepens and reaches Descemet's membrane, its progress may be checked for a time, and the intra-ocular pressure may bulge forward the elastic Descemet's membrane, producing a hernia of it, the so-called keratocele. At any time during the progression of the ulcer hypopyon may appear. Hypopyon is an accumulation of pus in the anterior chamber. This pus is sterile and is caused by the action of the toxins which have reached the anterior chamber. Micro-organisms cannot pass through an intact Descemet's membrane; their toxins may pass through, however.

Now the ulcer may go on to perforate the cornea or resolution may take place. The tendency for the ulcer to heal first manifests itself by a fading out of the zone of infiltration. This is followed by the casting off of the slough from the surface of the ulcer, its crater becomes even and clear, and discoloration disappears. The epithelium begins to creep over the margin of the ulcer, lining the crater, so that it appears smooth and lustrous. Later new connective tissue forming beneath this epithelial lining fills in the defect, lifting the epithelium to the level of the surface of the surrounding cornea. The new connective tissue never assumes histologically the character of normal corneal stroma and remains more or less opaque. The density of the resulting scar depends upon the extent of the preceding ulcer, its chronicity and the age of the patient. The terms nebula, macula and leucoma are applied to the resulting scar, according to the density.

*Read before the State Med. Assn. of Texas. Texas State Jour. of Med., Feb., 1913.

Bowman's membrane; when once destroyed, never regenerates. A lesion involving only the corneal epithelium and Bowman's membrane heals without scar formation.

The following classification of the different types of ulcers may be made:

1. *Primary Ulcers*.—By a primary ulcer we mean one that develops in the cornea independently of any other disturbance. Such ulcers are caused usually by the pneumococcus, the staphylococcus or the streptococcus. Of these organisms, the pneumococcus alone produces a characteristic clinical picture. It develops at or near the center of the cornea. The inflammatory symptoms are not marked in the early stages. A superficial infiltrate first appears, over which the corneal substance is cast off. At one part of the periphery of the resulting ulcer a swollen grayish, crescentic area appears. The floor is uneven and slopes toward this area. Fine grayish lines extend from this area, radiating into the substance of the cornea. The ulcer has a tendency to creep slowly in one direction into the healthy tissue, and is usually followed by perforation or staphyloma. Healed cases result in a dense leucoma. The ulcer usually occurs in adults, especially in outdoor laborers. Hypopyon occurs early, hence the synonymous term, "hypopyon ulcer." Iritis soon appears. There is, as a rule, no accompanying conjunctivitis, but in eighty per cent of the cases lachrymal obstruction exists. Useful vision is destroyed in ninety per cent of the cases. Other micro-organisms may produce typical serpiginous ulcers.

2. *Secondary Ulcers* are those resulting from pre-existing conjunctivitis. The gonococcus, the Klebs-Loeffler bacillus and the Morax-Axenfeld, are common causes of secondary ulcers which have no clinical characteristics.

3. *Ulcer Resulting from Constitutional Disturbances*.—The phlyctenular ulcer represents this type. It is common in scrofulous children. The disturbance first manifests itself as small superficial and quite frequently marginal infiltrates that break down and produce multiple shallow ulcers, which rarely perforate and are seldom accompanied by hypopyon or iritis.

4. *Ulcers Due to Trophic Disturbances*.—Of this type keratitis lagophthalmo and keratitis neuroparalytica and keratomalacia may be mentioned. A more common form, however, is the so-called dendritic ulcer. It has also been called malarial keratitis. This type of ulcer appears usually in adults and is characterized by its peculiar shape, the

lesion being a superficial linear opacity, from which sprout tiny branches.

5. *Ulcer of Obscure Etiology*.—Moran's ulcer or *Ulcus Rodens*. A rare form of ulcer of unknown etiology. Chronic in nature, possessing an advancing undermining border, over which the epithelium may remain intact for some time. The resulting scar is anesthetic. There is no specific organisms present and there is no purulent infiltration.

The advent of a corneal ulcer may be ushered by pain, which varies greatly in severity. The pain may be located in the eyeball or referred to the temple. The most excruciating pain may accompany a simple abrasion of the cornea, since the sensory nerve terminations are largely in the epithelial layer of the cornea. Photophobia, lachrymation and blepharospasm, may be present. Disturbance of vision depends upon the location of the ulcer and the other accompanying symptoms. Ciliary injection and a contracted pupil, are usually present and there may be anesthesia of the cornea, irido-cyclitis, hypopyon, disturbed tension, etc. An examination of the cornea should be made in the dark room. It may be necessary to instill a four per cent solution of cocaine in order to quiet the eye. By the use of oblique illumination and the corneal loop, the condition of the cornea may be carefully studied. One should note the shape of the cornea, its transparency, the surface polish, the presence of new tissue, the loss of substance, the evenness of surface, the presence of vessels and the presence of foreign bodies. A loss of transparency of the cornea may mean the presence of either an infiltrate, an ulcer or a scar. If the lesion is an infiltrate there will be a loss of substance, indistinctness of margin, loss of surface lustre, and symptoms of inflammation. If the lesion is an ulcer there will be loss of substance, and its margin will be well defined; there will be discoloration and accompanying signs of inflammation. If the lesion is a scar, the surface will be lustrous and even, its margin will be defined and there will be no signs of inflammation present. If the ulcer progresses in depth and perforates the cornea, prolapse of the iris may take place. Healing may then take place with the iris incarcerated in the wound, forming an anterior synechia; if complicated by a dense cicatrix it is called an adherent leucoma. Such an area in the cornea may be weakened to such an extent that it gives way to the normal intra-ocular pressure, resulting in a staphyloma of the

cornea. Or the area of scar tissue may be pervious to the aqueous humor, resulting in fistula of the cornea. During the collapse of the anterior chamber, the capsule of the lens may come in contact with the lips of the wound, resulting in the formation of cataract, usually of the anterior polar variety. The rupture of the wound may be so forcible as to cause partial or complete luxation of the lens. The sudden diminution of intra-ocular tension may result in intra-ocular hemorrhage. Glaucoma may result from anterior or posterior synechiae, which interfere with the circulation of the aqueous humor. Finally, the introduction of micro-organisms within the eyeball may lead to panophthalmitis and phthisis bulbi.

Prognosis.—The prognosis in a given case depends upon a number of factors. It is a well-known fact that ulcers caused by certain micro-organisms render the prognosis grave as regards not only vision, but the integrity of the eyeball itself. Perhaps the most destructive of the micro-organisms commonly found is the pneumococcus. The prognosis will depend, too, upon the virulence of the micro-organism present and the resistance of the tissue to its propagation. The ulcer caused by the gonococcus is much more dangerous in the adult than in children. The location of the ulcer is an important factor. Central ulcers are more prone to become virulent than peripheral ulcers, and the resulting scar interferes, of course, more with vision.

The prognosis depends upon the institution of early and energetic treatment. In giving a prognosis, one must bear in mind that a number of factors enter into the amount of scar tissue which will follow in a given case.

Corneal scars clear up wonderfully in the eye of a child, while in the adult the same scar would show but little change from year to year. As mentioned previously, corneal disturbances involving only the epithelial and Bowman's layers, heal without scar formation. The amount of scar tissue depends, therefore, upon the depth of the preceding ulcer. Again, the chronicity of the ulcer is an important factor, since in slow-healing ulcer the tissue laid down is more dense and opaque.

Prophylaxis.—In the manipulation of the eye care must be exercised to prevent the drying or disturbance of the integrity of the corneal epithelium. Simple abrasion of the cornea should be treated as an infected wound until perfectly healed. The removal of foreign bodies from the eye should be

done by the surgeon with antiseptic precaution and with as little disturbance of the surrounding area as possible. The epithelial cells of the cornea regenerate with great rapidity and a slight abrasion will become clothed within a few hours, particularly if the eye is bandaged. All cases of dachryocystitis not amenable to conservative treatment call for extirpation of the lachrymal sac, since the serpiginous ulcer is very frequently a concomitant of lachrymal obstruction. Early treatment of predisposing conjunctivitis, with care to protect the cornea during treatment, will lessen the danger of secondary ulcers. The necessity of proper attention to the eyes of the newborn need only be mentioned here. Men in trades exposed to foreign body injuries should wear goggles.

Treatment.—Most types of corneal ulcers respond to prompt and energetic treatment. When an ulcer of the cornea has once formed, the first step in the treatment should be the identification of the micro-organism present. It may be of the utmost importance to know what organism is present in instituting the proper treatment. For instance, the presence of the pneumococcus indicates the necessity of early cauterization. When once the micro-organism has been identified, its destruction must be brought about by either mechanical, chemical or thermal agents. Probably much of the good resulting from the use of the so-called antiseptics in the eye is due to their mechanical action. In the simple non-virulent forms of corneal ulcer the frequent irrigation of the cul-de-sac with lotions of boric acid, potassium permanganate or mercury bichloride is efficacious. Of chemical agents, those may be used which combat the primary disturbance, *i. e.*, conjunctivitis, such as argyrol, protargol and silver nitrate. We have one specific of this class of drugs, namely, zinc sulphate, which is used in the Morax-Axenfeld type of ulcer. Where the attending symptoms are severe from the beginning, or when the presence of the pneumococcus has been demonstrated, chemical or thermal cauterization is indicated at once. Of the chemical cauteries, pure carbolic acid is one of the best. It is best applied by a fine application just moistened with the drug. The electric cauterium is the best thermal agent, and, when once decided upon as necessary, it should be thoroughly used. In addition to these remedies, we must increase local and general resistance by local and general rest. Local rest is best secured by the use of atropine frequently enough to keep the

pupil dilated, and, in addition, a bandage should be used in cases where absence of pus in the cul-de-sac permits.

Local circulation should be stimulated by the application of hot compresses at frequent intervals. The use of dionin, by its effect upon the lymphatic circulation, is of value. Subconjunctival injections are sometimes of great value, normal salt solution giving as good results as any other agent. When other measures have failed, the Saemisch section is indicated as in some cases it seems to give good results.

In the diphtheritic type of ulcer the antitoxin is, of course, indicated.

In those groups of ulcers due to constitutional and trophic disturbances, constitutional treatment is of great importance.

Finally, in case the ulcer has become sluggish, the use of local irritants is of great value.

THE ACUTE DIARRHEAS OF INFANTS*

By Richard M. Smith, M.D., of Boston, Mass.

THERE has been much discussion in recent years concerning the acute diarrheas of infants. This discussion has more than an academic interest. The failures in the treatment of these patients in the past have been due in part at least to an erroneous conception of the diseases. In discussions of gastro-intestinal disturbances emphasis formerly was placed upon the presence of diarrhea, vomiting, convulsions or other symptoms, and therapy was based upon this interpretation. At the present time these symptoms are considered merely as such which depend for their existence upon common causes. In an individual patient one or the other of the symptoms may predominate according to the circumstances. Effort is directed toward finding the cause of the disturbance, not primarily in stopping the vomiting or checking the diarrhea. It is possible to differentiate certain fairly distinct groups among these acute diarrheas. The recognition of these groups is important because the treatment of each group differs from that of the others.

The first important group is associated with disturbances of digestion. These cases occur at any time of the year and in all classes of the community. Overfeeding is usually responsible for the condition. The overfeeding may be due to bad food, such as unripe fruit, dirty milk, or some other obviously improper article of diet, or it may be due to an excess of a food which in moderation would cause no trouble. This

is the simplest of all the acute gastro-intestinal disturbances. The onset is usually abrupt, accompanied by vomiting and diarrhea without temperature or toxic symptoms. The treatment consists in free catharsis, a short period of starvation and a rapid return to normal diet. In all the acute gastro-intestinal disturbances, castor oil is the cathartic of choice. In infants with severe vomiting when castor oil cannot be retained, calomel in divided doses may be used.

Overfeeding may be due to an excess of a single food element. Overfeeding in fat usually produces an abrupt disturbance frequently accompanied by convulsions. Fever is a common occurrence, but is of short duration. There is loss of appetite and usually vomiting. In many instances a rash appears which may be mistaken for one of the exanthemata. The stools are frequent in number, green in color and contain mucus and many fine, soft curds. The diarrhea is kept up presumably by the presence of the irritating fatty acids in the intestine. The treatment of this condition consists in the reduction in or elimination from the diet of the element which is causing the trouble—namely, the fat. The return to a larger amount of fat must be slow and always guided by an examination of the stools. No more fat should be given than the infant can digest.

Overfeeding in carbohydrates may be brought about by overfeeding in sugar or in starch. The onset is as a rule not quite so stormy as in fat disturbance, and fever if present at all is of very short duration. Usually there is a good deal of gas which is belched from the stomach and passed by rectum. Vomiting is not a prominent symptom. A rash may be present in this condition also. In some instances it can be distinguished from the eruption due to overfeeding in fat. In general, it may be said that the carbohydrate rash is more diffuse and shows less tendency to localization on the face and to become moist. Usually it itches very badly. The stools are frequent and vary in color from yellow to brown and green. They may be watery or may contain fecal matter and mucus. Sometimes they are frothy. Usually there is excoriation of the buttocks. This is the most distinguishing characteristic of this type of overfeeding. The treatment of this condition consists in the elimination of or a change in the character of the carbohydrate in the food. In the convalescence, malt sugar is usually better borne than lactose.

So far as we are aware proteid over-

* Interstate Med. Jour., Sept., 1913.

feeding does not cause any acute gastro-intestinal disturbance except that overfeeding in whey may result in frequent stools. What element in the whey is responsible for this we are not at the present time able to state. The relation of the salts in the diet to disturbances of digestion is not well known. Whatever knowledge we have on this matter is not so correlated as to be of practical application at the present time.

The second group of acute diarrheas is well recognized but much more difficult to designate. It is the type of disturbance popularly known as "summer complaint." The cases come in waves. Certain facts would seem to indicate that the cause of disturbance in this group is in some way related to atmospheric conditions. Improvement in the milk supply and protection of infants from infection leaves this group of disturbances undiminished in frequency. In sections of the country where there is very low humidity this type of disease is practically unknown. In communities where it exists it is most common in those sections where there is greatest congestion and the poorest housing conditions. Possibly bacteria enter into the etiology of these cases, but presumably only as a secondary factor. The onset in this type of disturbance is abrupt, usually closely associated with changes in weather. Fever is present, often high but lasting only a day or two. Convulsions may occur. There is usually marked prostration with depressed eyes, dry skin and semi-coma. Vomiting is often a prominent symptom. The stools are frequent in number, green in color and contain mucus, but present no other characteristic appearance. Blood and pus are usually absent except that if diarrhea continues for a considerable period of time the irritation may result in bloody stools.

The treatment of this type of diarrhea consists in the restoration of the normal temperature relations of the body. Evaporation from the skin should be brought about by sponging with cold water or alcohol. The removal of the infant to a place where there is cool air or at least a breeze is immediately followed by a favorable reaction. Liquids must be supplied in large quantities by mouth if possible, if not under the skin. At the outset castor oil and a single colon irrigation should be given. After twelve or twenty-four hours it is usually possible to begin giving cereal water and in a very short time diluted milk. The return to a full diet must be regulated by the progress of the individual patient, but in most instances is fairly rapid. It is this

kind of illness which is so strikingly benefited by treatment on a Floating Hospital or at a hospital in the country.

We come now to the consideration of the third group of acute diarrheas in which bacteria play a primary rôle. The term infectious diarrhea is not a very satisfactory name for the condition, but is used to designate a group of diseases caused by infectious organisms, i. e., by bacteria, in which the chief symptom is diarrhea. These diseases are quite different from the other groups. We are dealing now with infectious diseases and our point of view and method of treatment must be modified accordingly.

The first thing to consider in these diseases is prophylaxis. How can we prevent an individual infant from becoming infected, and how can we prevent an infant who has the disease from giving it to others? In general, the bacteria causing these diseases enter the body through the mouth with the food. Since milk is the principal article of food for infants, a supervision of the milk supply becomes of immediate importance. Water may contain the infective agent, as may also any article of food eaten in an uncooked state. In the care of a baby ill with infectious diarrhea it is necessary to use the same care as in other infectious diseases. Flies and insects may easily spread the infection. Great care should be exercised carefully to screen the patients and their excreta.

The bacteria causing infectious diarrhea are the dysentery bacillus, the gas bacillus and other organisms not yet fully determined. Clinically, infectious diarrhea is an entity and its various subdivisions can be distinguished with certainty only by a bacteriological examination of the stools.

Bacillary dysentery is an infectious disease due to the dysentery bacillus. The bacillus may be of two types, the Shiga or the Flexner, differing only in cultural characteristics. The symptoms are digestive and toxic. Diarrhea usually is the first sign of the disease. There may be as many as twenty or thirty movements in twenty-four hours. The stools are very loose and contain large amounts of water, are usually green in color with fine white curds, considerable mucus, pus and blood. They may have a characteristic sweetish odor. They are accompanied by tenesmus. Vomiting is the rule. Fever is usually high, often 104° or 105° F., and continues for a considerable length of time. Toxemia and prostration are marked, the pulse is weak, the color poor, respiration often sighing. The loss of water is shown by a depressed

fontanelle, sunken eyes, scaphoid abdomen and a dry skin.

On post-mortem examination the principal lesion is found to be in the intestinal tract, especially in the large intestine where there are numerous small and large ulcers. Elsewhere in the body are the signs of a general infection. The extent of the local lesions bears no direct relation to the severity of the infection.

The prognosis is grave. The infants die within a few days of the first symptoms or occasionally the disease becomes chronic in character but ends fatally.

Treatment consists of two things: First, treatment of the toxemia, which is by far the more important, and secondly, the treatment of the local condition. In the first place a cathartic should be given to clean the intestinal tract so far as possible. For this, castor oil is best, then water should be given freely and all other food withheld. The amount of water should be equal at least to the amount of liquids which the child would be taking were he taking a normal amount of food for a child of his age and size. If the child is unable to take water by mouth it should be supplied in some other way. Usually tenesmus and frequent movements prevent the giving of liquids by rectum, so that subcutaneous injections are necessary. For this normal salt solution is used. Following this initial purgation and starvation, after twelve to fourteen hours, a 5 per cent lactose solution should be given. This serves two purposes, in the first place it supplies a certain amount of nourishment and in the second place it prevents the formation of toxic products. In the presence of a utilizable carbohydrate the dysentery bacillus will break down only enough proteid to supply its nitrogen requirement. It is the proteid products which are toxic. The lactose feeding prevents the formation of those substances in the body by the bacteria. Living matter needs proteid, and this must be supplied in the food to prevent too great a drawing upon the proteid of the body. Just when anything other than lactose should be given must be decided in accordance with the condition of the individual patient. Milk should be withheld for a considerable length of time. It is rarely wise to increase the diet so long as the temperature is elevated or the stools contain blood. Dextrose infusions 2.5 per cent may be given as another means of supplying food and liquid. Stimulation is often necessary. In the treatment of the local condition of the intestine cleanliness is most important. Irrigations of the colon

with normal salt solution or plain sterile water should be given twice daily provided they are not followed by a severe depressing reaction. If there is a tendency to collapse they should not be given at all. A certain number of cases seem to be benefited by an astringent injection. For this purpose one pint of a 3 per cent silver nitrate solution injected after a cleaning irrigation with sterile water has proved most valuable.

In gas bacillus dysentery the symptoms and stool picture are like bacillary dysentery. The bacterial examination of the stools, however, show the gas bacillus in large numbers. Pathologically the lesions are very different from bacillary dysentery. No ulcers are found, but there is a general pinpoint exudate over the mucous membrane of the large intestine. In the severe lesions a pseudo-membrane is formed. The prognosis in this disease is good provided the proper treatment is started early. The treatment consists in the administration of a food of high proteid and low carbohydrate composition. The gas bacillus develops easily on a carbohydrate food and its growth is not self-limiting. After the initial purgation buttermilk should be administered by stomach tube if necessary. The composition of this food fulfills the requirements, and the presence of the lactic acid bacilli is unfavorable to the growth of the gas bacilli.

There are many cases of infectious diarrhea in which the dysentery bacillus or the gas bacillus is not present in large numbers. These cases are undoubtedly caused by organisms which as yet cannot be exactly classified. Future study will reduce the undetermined cases to a minimum. The treatment of these cases must be along the lines outlined for bacillary and gas infections—feeding either carbohydrates or proteid as response in the individual patient may indicate.

It is possible that the streptococcus is responsible for a distinct disease in this group, i. e., that it is a primary etiological factor. It is probable, however, that its connection here is the same as in scarlet fever where it evidently is a complicating organism. The presence of streptococci in the stools in any considerable numbers adds to the gravity of the prognosis but does not modify the treatment.

329 Beacon Street.

Chilblains:

Acidi Tannici grn. jss

Glycerini

Aquæ Rosæ āā f. ʒjss

M. Sig.: Apply after bathing part in hot water.
—Besnier.

A REVIEW OF A CLINICAL STUDY OF MALARIAL FEVER IN PANAMA*

By John Pelham Bates, M.D., of Ancon, Canal
Zone, Panama

A REVIEW of the literature on the subject of the administration of quinine for the cure of malaria discloses the fact that the question is far from being a closed one. The quantity of quinine necessary to control the malarial attacks is still debated, and the question as to whether small doses frequently repeated, or whether larger doses at wider intervals are the most efficient to control the febrile attacks have their advocates both pro and con. The question of the time in the life phases of the malarial organism when the quinine is most effective in the destruction of the organisms, is now settled. This time is accepted by all to be in the stages of the active development of the parasites and all agree that the effectiveness of the drug continues on the intracellular organism but with progressively decreasing potency till about maturity where it ceases altogether.

With this part of the subject settled, it would appear that all would at once agree then that quinine should be administered at the time of the day which would introduce the drug into the circulation in greatest concentration during the youngest developing stages of the organisms, but, as a matter of fact, clinical experience has proved that such a method of administering quinine is not at all necessary to produce quite satisfactory clinical results, and as it is not always feasible to await a choice of time to administer quinine, many have come to hold the view that quinine given in moderate doses frequently repeated is as a rule the method of choice. The contention for the effectiveness of what may be termed small daily quantities of quinine, that is, 15 to 20 grn. as average doses, and 30 to 40 grn. as maximum quantities, it appears to me, is brought about by willingness to permit the febrile course of malaria to continue unchecked unnecessarily long.

It would be well here I think to again call attention to spontaneous recovery in malaria, in order to estimate the value of treatment by either small, average or large daily quantities of quinine. Most workers in malaria have for various purposes left off quinine in cases of ordinary gravity, to find that such cases usually terminate their course in about ten or fifteen days with rest and restricted diet. Some of these cases terminate spontaneously in much quicker time than this. In a series of cases

in which I refrained from giving quinine, to study the temperature curve and life phases of parasites, I was surprised in one case to find the temperature had ceased after the fifth day from admission, and from the cessation of the temperature the parasites disappeared to such an extent that the study of the blood was no longer profitable. This case was a quotidian infection, and the blood smears at first were fairly rich in parasites. It is easy to see in this case what effect small doses of quinine would have had and what impression this therapy would have made on the mind of the observer in this isolated instance. But, on the other hand, while this study was being carried out, another case presented itself, a subtertian infection, which appeared about equal to the first case, and the patient on admission seemed no more ill, but the illness pursued no such course as the first one. Instead of the symptoms becoming milder and milder each day, as was seen in the first case, they grew worse from day to day, until on the fifth day from admission the patient began to show symptoms which made me fear if he were continued without quinine much longer the illness would terminate in a pernicious attack; hence quinine was begun at once. The parasites in this case also behaved differently from the parasites in the first. They began to increase in number with the increase in the gravity of the symptoms, and what is more significant, as I shall show later, their characteristics began to change; they were now no longer nearly all the same age and in the ring forms, but grown forms began to appear in the smears, presegmenting and segmenting bodies in moderate numbers, together with occasional crescent forms. The quinine in this case was given in doses of 10 grn. three times a day, with satisfactory results.

Here, then, two cases are shown, in which, from all appearances at the time of admission, which could be judged from the blood examination and the clinical symptoms, ought to have pursued a similar course. Yet some undetermined factor did not permit them to do so. By contrasting these two cases, it is quite evident that the same quantity of quinine administered to each would not have produced a similar result for each. In the first case, 3 to 5 grn. of quinine a day would have sufficed to produce satisfactory clinical results, while in the second case 30 grn. a day was necessary to do so. Thus, from the study of these two cases, and many similar ones, the conclusion has been reached that quinine must be increased in quantity to meet the

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gravity of the infection. For one to undertake to grade the doses of quinine in proportion to the gravity of the infection in every case is, of course, out of the question, and in trying to avoid such a difficult process, the general experience of all workers has at last arrived at average doses for the largest majority of all cases of malaria, which is about 30 grn. a day. Experience here has proved that the quantity of quinine that can be administered for short periods of time without danger to the patient is very much larger than is generally advised.

The largest majority of all cases of malaria are of moderate severity, and will terminate their course spontaneously in ten to fifteen days, or twenty days at most; this holds good for tropical climates as well as temperate; thus it is that we find 30 grn. of quinine a day sufficient to meet the requirements of the greater number of malarial cases. But in severe malarious countries a goodly portion of the cases, like case 2 already noted, do not tend towards spontaneous recovery, but pass beyond the average into the grave and pernicious types. In these types all agree that quinine should be increased in doses beyond the average of 30 grn. a day, but the question becomes, to what extent should quinine be increased to be effective in those types of malaria? Craig¹ states that 40 grn. a day should never be exceeded, while others do not specify any limit, but very few recommend quantities exceeding 45 grn. a day. In our hospitals here it has been found necessary to exceed very greatly these quantities of quinine in the grave and pernicious types. We first increase the quinine for the therapeutic tests for differential diagnosis, and second, to meet the requirements of the very grave pernicious attacks. The routine practice is administer 20 grn. of quinine in solution when the patient is admitted to the hospital, and continue thereafter with 30 grn. a day. For the therapeutic test quinine is sometimes increased to 45 grn. a day for one or two days, and then reduced to the usual 30 grn. a day. In the grave and pernicious cases quinine is administered in quantities of from 60 to 90 grn. a day, according to the gravity of the case. In my individual work I have in many instances exceeded even these quantities, and I have administered 120 grn. in the first twenty-four hours. I do not, however, continue quinine in these massive quantities for a period longer than twenty-four hours. Experience has taught that it is useless to continue quinine in such massive quantities for a period longer than twenty-four hours. If quantities such as 90 to 120 grn. in

twenty-four hours do not suffice to effect relief, the infection has already passed the stage where treatment can be of any avail. In fact, cases of such gravity as to call for quinine above 80 grn. in the first twenty-four hours usually prove fatal within this period, and one rarely succeeds for the lack of time to introduce 90 to 120 grn. of quinine into the system. If quinine has in this time proved beneficial the remedy is immediately reduced to 45 grn. a day, where it is allowed to remain for the next succeeding twenty-four to forty-eight hours, when it is again reduced to the usual 30 grn. a day. In the cases in which I have succeeded in administering these massive quantities within this period, I have felt that I had succeeded in saving the patients' lives; at least, I have had the satisfaction of knowing that I did them no harm, for I have seen no evil results following this method of administering these large doses of quinine.

There is a small percentage of pernicious fevers in which I think the quinine ought to be much more rapidly reduced than is stated above, and in some instances even discontinued for a time. I have already called attention under the head symptoms of malaria to a class of pernicious fevers in which the parasites disappear rapidly from the circulation under treatment—the disappearance of the parasites is not merely from the peripheral circulation, but it is from the circulation as a whole, as is shown by autopsy smears—yet, in spite of this fact, the gravity of the symptoms continues to increase, and death takes place on the fourth, fifth or sixth day from admission. In this class of cases, as the cause of death has not been clearly ascertained, one can well assume that the quinine itself may be a contributing factor towards death. At all events, the quinine has served its purpose, and there can be no good reason for its continuance, as experience has proved that continuing the quinine does not prevent death; therefore, it ought to be rapidly reduced. The indication for the reduction of quinine in this class of cases can be easily ascertained from the examination from time to time of the blood of the periphery.

Indication for Increasing the Dosage of Quinine.—The indication for increasing the dosage of quinine is first noted from the examination of the blood smears. The gravity of the infection will, as a rule, be indicated by the number of parasites seen in the smears, though this rule does not hold good in either direction. Thus, one may see smears very rich in parasites, yet no pernicious symptoms will follow, and,

on the other hand, one may see in rare instances only a moderate number of parasites in the smears, but, nevertheless, the case will terminate in a pernicious attack in a few hours. One of the significant indications as to the gravity of the infection is the characteristics of the parasites as seen in the smears; that is the developing stage of the organism as seen in the peripheral blood. When full-grown forms, presegmenting and segmenting bodies begin to appear in the blood of the periphery, it always indicates that the infection has continued for some days, as these forms are rarely seen in the peripheral blood in the quotidian and subtertian infections, except when the symptoms are grave, or pernicious symptoms are already present. Another indication of rapidly oncoming pernicious symptoms is, when in puncturing the lobe of the ear or finger for examination purposes one finds that the blood is made to exude with great difficulty. In these instances the blood is dark, it clots quickly, and smears unevenly. This is an indication that the circulation is already embarrassed in the capillary system from blocking by the parasites or by the weakening of the circulatory organs from toxins. The clinical symptoms may now be correlated with these findings in the blood examinations for further aid in the indication for increasing the dosage of quinine. It was stated under the head of "symptoms in malaria," that certain mental aberrations manifest themselves before the onset of active pernicious symptoms. These mental aberrations are the inability for consecutive thought, difficulty in recollecting events in the illness, or at times moroseness or an unwillingness to make any mental effort, and at other times there will be vague wanderings away from the bed and so on. These clinical symptoms, in conjunction with the blood findings already noted, such as the richness of the parasites in the smears or the presence of sporulating forms and crescent bodies, always indicate that if quinine is not pushed the illness will eventuate in an active pernicious attack. The absence of these symptoms, even with large numbers of parasites, indicates that the case will probably pursue an average course, and one may begin the treatment with average doses of quinine, but ready at all times to increase the dosage if untoward symptoms arise; but, on the other hand, if these mental symptoms are present, although there may be only a moderate-appearing infection, one should push the treatment boldly. In these cases with grave symptoms, though not yet quite pernicious, quinine should be administered in quanti-

ties of 45 or 60 grn. for the first twenty-four or forty-eight hours. Where active pernicious symptoms are already present when the patient comes under observation, the larger doses of 80, 90, or even 120 grn. are indicated to be given but only for the first twenty-four hours. In those cases with the embarrassed circulation, I have always looked upon this condition as an indication for intravenous injections of quinine, also in as large doses as can be given in proper dilution, usually 20 grn. in 10 Cc. of water. Intravenous injections are now practised by Dr. W. M. James, in Ancon Hospital, in large dilutions, somewhat after the method of salvarsan injections. I have had no experience with this method.

The Time of the Day to Administer Quinine.—In Ancon Hospital it had been a routine practice to administer quinine in 10-grain doses three times a day, while in Colon Hospital the practice, as introduced by Brem², has been to administer quinine in 15-grain doses at 6 and 11 A. M. Both of these practices have been equally satisfactory clinically, but I am nevertheless partial to the twice-a-day method, with both doses given in the forenoon. It has the advantage of being less troublesome to the patient, and as a majority of the cases of malaria have their paroxysms in the forenoon, the twice-a-day method has the added advantage of putting the quinine into the circulation in greatest concentration at about the time that sporulation most frequently occurs, thus permitting the quinine to act most effectively on the young organisms. But when it becomes necessary to increase the dosage to 45 grn. a day, or more, it is then not feasible to continue the administration in twice-a-day doses. Under such circumstances I usually administer for the 45 grn. a day three 15-grain doses during the day, or for the 60 grn. a day four 15-grain doses. For quantities above this, quinine is administered in 10-grain doses every two or three hours as the case seems to indicate.

The Methods of Administering Quinine.—I shall here discuss briefly the methods of administering quinine. Such a discussion would hardly require the space if it were not for the fact that a general impression seems to prevail, that when quinine is administered hypodermically it has a like potency, and acts in the same degree of efficiency as the other highly soluble drugs such as strychnine or morphine, when administered in this manner. This assumption thus makes the hypodermic method of administering quinine the method of choice when one is desirous of putting quinine into

the system in the greatest quantity in the least time. I suppose this idea is deduced from the fact of the prompt and full effect produced by hypodermic injections of the soluble salts of the more powerful drugs which can be administered in minute doses. But with quinine the case is hardly similar. Quinine is not very soluble at best, and the quantity administered is enormous when compared to the very soluble salts that are usually administered hypodermically. To a certain extent it is found that quinine when administered hypodermically follows the rule of the other soluble drugs when administered in a like manner, in that it appears in the urine more quickly than when administered by the mouth, but it by no means follows that the full quantity of quinine injected is all absorbed, or, even if it is all absorbed, that it is absorbed rapidly. In fact clinical experience would lead one to infer that when quinine is administered hypodermically the full quantity is slowly absorbed, and in many instances scarcely absorbed at all. Rogers³ has pointed out by comparison of charts that the fever may not be checked as promptly by quinine administered hypodermically as when administered by the mouth, and Thayer⁴ notes that a large percentage of the salt is precipitated in the tissues when it is administered hypodermically. Indeed, it is a too common experience after a hypodermic administration of quinine for one to be confronted by patients with deep-seated indurated painful masses at the site of the injection. These masses may remain for a week or more to slowly absorb, or finally, a certain per cent of them break down by coagulation necrosis into large sloughing indolent abscesses and this untoward event occurs in spite of all aseptic precautions. Thus, it appears to me that while quinine administered hypodermically is our sheet anchor in a great many pernicious cases of malaria, it is nevertheless not a method of election but a method of necessity. Therefore, I think when quinine is administered by the mouth and already in solution, it is even more efficacious than by hypodermic injection. I make it a practice to follow the method of administering quinine by the mouth as long as the patient can be induced to swallow. Even when vomiting is a troublesome problem, a little patience and a little perseverance will be rewarded by surprisingly satisfactory results. By repeating the doses of quinine in small amounts, 10 grn. or so, after each rejection by vomiting, with such other symptomatic remedies as may suggest themselves, a small hypodermic injection of morphia or hot sinapisms over the stomach

for instance, one will find that the vomiting will cease, and that the patient can continue to take quinine with a fair degree of comfort.

Intravenous Administration of Quinine.—Intravenous injection of quinine is, of course, unquestionably the most rapid and efficient means of administering the drug, but unfortunately this method is not without danger to the patient. Thayer⁵ has reported a case in which death occurred immediately after the intravenous injection of quinine, and I have had one case in which the symptoms became very alarming just at the close of the operation. In this case the pulse ceased to be perceptible at the wrist, the mucous membranes became cyanotic, and the respirations shallow and sighing. On account of the danger to the patient I have been timid about adopting this method, and have not used it except in cases in which I felt that no other means of administering quinine could be of any benefit, that is to say, I have used the method only as a last resort. My results, therefore, have not been satisfactory. All the cases of pernicious malaria in which I have used intravenous administration of quinine have died in from two to eight hours after the administration of the drug in this manner. Nevertheless, I am not condemning the method, and I think I could have made it perhaps of use to me if I had made a better selection of my cases.

McGilchrist⁶ has of late brought forward the method of hypodermoclysis, thus using high dilutions of the drug. This method has been used by James⁷ in Ancon Hospital, and at first reported favorably, to be later abandoned. It was attended by too much pain, and from the exhibition of James's charts, in which in some the temperature persisted for nine days, I think that this latter method is not as efficacious as even the hypodermic method.

The Prevention of Relapse.—I am beginning of late to be inclined to the postulate that malarial parasites become feebly "fast" to quinine when they are forced to develop through several generations in weak dilutions of the drug in the circulation. If this then is true, interrupted periods of administering quinine is the proper method for preventing relapses. Experience has taught that interrupted periods of administration of quinine has at least this advantage, and that is, that patients will in most instances persist in this method of their own accord, when they will not continue quinine in regular daily doses in quantities sufficient to be efficacious. It is an old practice to administer quinine in interrupted periods of about one week interval. Mar-

chiafava and Bignami⁸, so far as I am able to learn, were the first to adopt the interrupted method of administering quinine in relapses, and they insist from their experience that it is the best method for preventing the recurrences. I have also found this method very efficacious when dealing with intelligent patients. I pursue the method in the following manner: from the last day of the subsidence of the fever I have the patient count forward seven days, and make a note of the date, and each seventh day thereafter is noted for six weeks, and preferably eight weeks. On the day before the seventh day the patient is instructed to begin quinine in full doses, usually 30 grn., and continue it through the seventh or pivotal day, and continue it throughout the next day following. Then discontinue until the next period, and thus continue the treatment throughout the specified time. As I have already stated to obtain results by this method presupposes intelligence on the part of the patient or his guardian.

Effect of Quinine in Large Doses.—As I have stated, the quantities of quinine we administer here in our hospitals are larger than are usually administered in any other institutions, and I judge it will be of interest to make known the effect these quantities have on the patients. As I have already stated, so far as I can see it has had no evil effect in any manner.

If it has been the cause of precipitating black-water fever, there has been no means of ascertaining this fact, but apparently it has not done so. It has left no permanent ill-effects upon the hearing or sight, and I have seen only one instance of quinine amblyopia, and this occurred while the patient was taking 30 grn. a day. In one case quinine in solution was administered, by accidentally overlooking a patient, in 30 grn. a day doses for a period of seven months, at which time no ill effects could be noted, and the patient stated that he had long since ceased to be troubled by ringing in the ears or other unpleasant symptoms. It was not unusual in my wards in the press of heavy work to overlook patients in the manner as stated, and allow them to continue on quinine of 30 grn. a day for periods of two or three months. In these instances there was no apparent ill effect from the drug.

I have in this series of papers stated to the point of tediousness that if quinine is administered in malaria in an efficient manner one may always expect that the febrile course will be checked in from one to five days. I have herein set forth what I consider the efficient administration of quinine. There are several adjuvants to quinine in

malaria which make for the efficiency of the treatment, and to obtain the best results one must insist upon them. The first of these is rest in bed during the febrile stage, no matter whether the case is mild or severe. The second is restricted diet, and the third is prevention of continuous reinfection of the patient in his own surroundings. Thus, in our hospitals here the patient is kept in bed until the fever is completely controlled, and the diet during this time is always liquid. After the fever is completely broken, the patient is allowed to be about the ward in moderation, and soft diet is allowed during this time, but it is served at the bedside. After from two to several days on soft diet, according to the gravity of the illness, full diet is allowed, and the patients are permitted then to go about the wards as they please until discharged. Routine doses of quinine are of course continued during the entire stay of the patients in hospital.

In the preparation of these articles I have been confronted by a paucity of literature and have had to depend largely on current text-books. On account of the richness in material and the completeness of the work, I have drawn very liberally from "Malaria in the Twentieth Century Practice of Medicine," William Wood and Company, New York, by Marchiafava and Bignami, to whom I wish to express my profound obligations. I wish also to continue my thanks to Colonel W. C. Gorgas, Chief Sanitary Officer, Isthmian Canal Commission, for permission to publish these articles, and to thank Major Robert E. Noble, M.C., U.S.A., Dr. S. T. Darling, and Dr. W. M. James for encouragement and suggestions.

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THE TREATMENT OF THE PNEUMONIAS WITH MERCURY AND SULPHUR INTERNALLY*

By Louis Kolipinski, M.D., of Washington, D. C.

PNEUMONIAS dominate the pathology of diseases of the lung. Individuals who in a lifetime have not been victims of these maladies are extremely prone to be seized upon in old age by a severe or fatal attack.

Immunity from a previous pneumonia is of short duration, and is no protection from a second or third infection, which, as in the case of erysipelas or articular rheumatism, is more prone to return to a former victim than to attack a new one. The great prevalence and heavy mortality of these diseases place them among the most important in medical practice, and their successful treatment becomes a subject of great significance.

The identification and early recognition of the pneumonias is a work both simple and sure, and where they are overlooked or miscalled the reason of error is often negligence of physical examination and want of analysis of subjective and objective symptoms. Pneumonias are often diagnosed by the laity,—often by mothers in their children. The conscious adult subject feels himself suddenly stricken by a grave and serious malady.

The treatment of the pneumonias has varied with fashion and times from the heroic and tragic, through the meek and palliative, to the resigned and fatalistic. Thus, free and repeated bleeding, cupping and extensive fly blisters, with aconite, digitalis and veratrum viride, with mercury and tartar emetic, all have been in vogue in their day, to be followed later on with baths, wet packs, poultices, ice-packs, and cold winter air. Still later came the search for a serum or antitoxin. Finally, there prevails the use of opium for chest pains, sleeplessness, and cough, and of oxygen for dyspnea, with the knowledge that the disease is limited, and where nature cures, awaiting inactively the happy outcome.

Almost all of the treatments practised have been without clear or rational purpose, and, where markedly successful, have been equally efficient in other febrile diseases. Thus bleeding, aconite, veratrum viride, opium, and oxygen meet no clear or evident indication, but, on the contrary, are directly harmful; while quinine, digitalis, the cold-water bath and pack, and cold air

are of equal or more value in other acute febrile diseases, and are doubtless more useful in supporting the patient than in arresting or destroying the disease.

To consider, then, a suitable treatment for these diseases it is necessary to describe briefly the morbid anatomy and histology of the organ affected and the symptoms resulting therefrom, since without these facts established and admitted it cannot be made plain what the purpose and the plan of treatment should be.

Pneumonias are due to the irritant action of micro-organisms of different kinds upon the lung substance. They are generally inhaled, sometimes carried with the blood or lymph. *Lobular, catarrhal, or bronchopneumonia* is usually a secondary or terminal lung inflammation, a bronchitis having introduced it. A specific germ is impossible, but the pneumococcus is often found. The affection is most common in infancy, childhood, and old age, and is the chief dangerous complication of measles and of whooping-cough. The lung is enlarged and collapses slowly. It crepitates on handling, but small nodules or indurations can be felt. Sunken, darker areas of atelectasis are visible. The unaffected parts may be emphysematous. The pleural surface over consolidations is often inflamed. The cut surface is smooth. The small bronchi are filled with mucus. The peribronchial glands are enlarged. Splenization is the term given to this appearance. The air spaces are filled with leucocytes and epithelial cells, and a fluid, serous, or mucoid exudate. Leucocytes infiltrate the walls of the smallest bronchi, which are also occluded. The vesicular walls are likewise infiltrated.

Abundance of active bacteria, pyogenic and saprophytic, may carry this process to suppuration or even gangrene. A bronchopneumonia in which inflammatory infection ceases or is limited, however, rapidly undergoes resolution, and the products thereof are removed by expectoration and by absorption.

Lobar, croupous, fibrinous or pleuropneumonia is a specific inflammation of the lung most often caused by the *Diplococcus pneumoniae* of Fraenkel and Weichselbaum. Other pathogenic micro-organisms can cause a croupous lung inflammation. Infection seems usually to enter through the air-passages.

Lobar pneumonia is found at all ages and is the pneumonia of the prime of life. It is mildly contagious, and the immunity that the disease leaves behind is too short

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to deserve the term. The affection seizes upon one or more lobes of the lung, oftener on the right side, much less frequently on both, and runs a short, fixed course of inflammation which, in its changes as well as in the activity of its symptoms, must be counted by hours as in the case of a diphtheria, and not by days.

Laennec's description of the pathological changes of lobar pneumonia, based upon the gross appearance of consistency and color, comprise the three well-known stages of engorgement, red and gray hepatization of the lung.

In the engorged state the affected lung is bright red. Crepitation on pressure is less. The specific gravity is increased. On section, blood or serum exudes. The vesicular capillaries are dilated and winding. The epithelium of the vesicles is in part desquamating. Free red and white blood-cells abound. The interlobular connective tissue is hyperemic.

In red hepatization, solidification of the exuded serum has occurred. The inflamed lung is red-brown, does not diminish in size when removed, and does not crepitate. Its specific gravity is increased, and it quickly sinks in water. Its cut surface is granular, owing to section of minute fibrin coagula. From the bronchioles larger fibrin casts protrude. The lung tissue is friable. As Coplin says, there is nothing more characteristic than this last fact. With the microscope the blood-vessels are seen to be overfull. The air-vesicles contain the hardened exudate, holding within its meshes leucocytes, red blood-corpuscles, and epithelial cells. The epithelial cells are much less numerous than in bronchopneumonia.

The end stage of the acute inflammation is that of gray hepatization. The inflamed part is now softer and more elastic, but tears readily. The color has markedly changed, being now a grayish yellow. The cut surface is smooth and has become moister. The peribronchial glands and nodes are enlarged. With the microscope are observed degenerated leucocytes and epithelial cells. The fibrin is disappearing and an albuminous fluid remains. This stage is consequently that in which the emulsified or partly digested organic inflammatory structures can be expelled or absorbed.

With the pathological changes in the lung described as characteristic of catarrhal pneumonia, the *symptoms* by which the disease is recognized, and its different *terminations*, are as follows:

The primary form is similar to a severe bronchitis, with a fever high or low, with or without an initial chill, pleuritic pain or soreness in the side. There is much coughing, with mucopurulent expectoration, not colored with blood. There is a unilateral area of lung crepitation at the base, with accompanying bronchitis râles; rarely the manifestations are on both sides. No bronchial breathing exists and percussion dullness is very slight.

The duration in favorable cases is several weeks, and recession of the fever is gradual. There is no specific micro-organism. The influenza bacillus is probably often active.

Similar, but diffused and much oftener bilateral, physical signs, and always with a preceding bronchitis, are found in secondary catarrhal pneumonia, prevalent during the existence of other diseases,—typhoid fever, influenza, whooping-cough, measles, chronic bronchitis, pulmonary consumption, and others.

The terminations of these pneumonias are variable. The course in some cases is short, in others long; many are fatal.

The symptoms of catarrhal pneumonia in the child are more marked and severe than in the adult. The general condition is grave. The patient is restless or somnolent. There is much fever and a rapid pulse, with a dry, shallow, painful cough, and scanty or no expectoration. The respiration is forced and very rapid, even to 60 or 90 in the minute. The evening temperature is high. The physical signs are: Subcrepitant râles, lessened percussion note, bronchial breathing, and bronchopony. The course is tedious and uncertain, and the disorder is often rapidly or slowly fatal. The vital symptoms is dyspnea, with death from suffocation or asphyxia and acute heart dilatation.

Croupous pneumonia begins very suddenly, with a severe chill and a fever rising rapidly. A gradual beginning of the disease is much rarer. In many cases, simultaneously or within a day's time, a severe pleuritic stitch is felt. Cough, inspiration, and speech are thereby suppressed. Accelerated breathing and dyspnea become increased more and more as solidification of the lung extends. The cough is short, shallow, and painful, and with much effort the characteristic glairy, tenacious, and bloody sputum appears. This sputum contains whole and dissolved red blood-cells, swollen and fatty leucocytes, alveolar epithelium, the *Diplococcus Pneumonia* and other bacteria, all in threads of mucin.

Rolled up, branch-like fibrin casts of the bronchioles are also found. In the end stage of the lung inflammation the viscosity of the sputum disappears; the latter is then mucopurulent.

Herpes of the lips and nose is often observed, usually in cases the course of which is favorable and tends toward recovery. From the high fever, painful cough, and rapid breathing, the patient sleeps but little, or else is much disturbed at night. Death or recovery with critical cessation of fever and subjective symptoms occurs within a week.

Physical examination reveals the affected side with shallow, the unaffected side with deeper, inspirations. The respirations in the adult are 30 to 60 in the minute. The accessory muscles of breathing are at work. The appearance of the face is either pale, congested, or cyanotic. The percussion note is a dull, tympanitic one—not flat as from effusion. In central pneumonia the note is unchanged. Auscultation elicits the crepitant râle (Laennec), bronchial breath-in, and bronchophony. With softening and resolution of the solidified lung occurs the *crepitatio redux*. Leucocytosis in the blood is found in frank, active, and favorable cases. The finding of the pneumococcus therein indicates the case to be a grave one.

The chief danger to life in croupous pneumonia is extensive lung inflammation and the resulting diminished area of respiration. This danger is further augmented by all weak states of the heart, such as result from fatty degeneration of the heart muscle, from fibrosis, from the heart lesions of alcoholism, of asthma and of emphysema, and may be accompanied by the degenerative changes of age and arteriosclerosis. Collapse from heart weakness is a further danger. This collapse, as in typhoid fever, occurs with a rapidly sinking febrile temperature.

From these considerations of the form and nature of lung inflammations, the indications of treatment are plain, and are evidently different from those long and customarily followed. These indications are to absorb or remove the inflammatory exudate, to overcome the septic fever, and from the beginning of the treatment to consider how much additional labor the heart is able to perform. The liquefied exudate must be eliminated by coughing or by lymphatic absorption, and the septic fever by an appropriate systemic antiseptic. The heart must, if necessary, be aided with digitalis.

The class of remedies called stimulating

expectorants, with one exception, possess no qualities adequate to fulfill the purpose contemplated, so that in treatment they fall into the place of feeble or fanciful adjuvants. Thus, senega, Tolu balsam, copaiba, the oil of turpentine, benzoin, the ammonium salts, and the alkaline iodides are all unequal to the task proposed.

Creosote is the exception referred to. Its praise by many practitioners for its favorable effects in these diseases is well deserved. It reduces high fever, strengthens the pulse by slowing it, and has a most pronounced power to stimulate the act of coughing. Creosote is useful in the pneumonias, but lacks the force or power to cut short or abort with certainty and uniformity the inflammation. While, therefore, a most useful agent, it is perhaps only one of second rank.

A number of years ago, the writer noted in several instances of broncho-pneumonia in infants, of tedious duration and with a stationary condition of catarrhal lung inflammation and solidification, with a feeble dry cough, a steady elevated fever, with much weakness and emaciation, without any favorable variation in the symptoms,—that when mercury bichloride and precipitated sulphur were given in small doses at two-hour intervals by day and three-hour intervals at night, at the end of the second or third day of this treatment the fever disappeared with a rapid but not critical decline, easy sleep returned at night, and the short, shallow cough became paroxysmal, deep, and moist. The cases first treated in this manner recovered quickly and permanently.

Further use of the mercury-sulphur treatment showed it to be as applicable to croupous as it is to catarrhal pneumonia, and at all ages of life. Apparently its action is to cut short the lung infection in a very short period of time. The patient is observed to respond to the remedy by a speedy decline and cessation of the fever and by a deep and violent cough, with the bringing up of an abundant mucopurulent sputum. In croupous pneumonia, the rusty appearance of the sputum is not very pronounced under this measure, and the expectoration is much less tenacious and gluey on the following day.

The treatment should be steadily pursued for several days. This affords ample time to determine if the patient has reacted favorably and the remedy has accomplished its work. The diagnosis having been correctly made, the state of the heart muscle and valves determined, complications de-

tected if present, and pulmonary tuberculosis, meningitis, purulent pleurisy, and pericarditis excluded, the patient is given *milk* and a *liquid diet* only.

The mercury-sulphur combination is given regularly at two- or three-hour intervals for two or three days. If, when the thirty-second dose is reached, catharsis has not been produced, $\frac{1}{2}$ ounce of castor oil is given to empty the intestinal tract. Should free purgation and colicky pains result from the mercury and sulphur, the castor oil is equally useful to abate this discomfort.

After the temperature in the evening is normal and recovery begins, the mercury-sulphur mixture is continued for several days longer at four- to six-hour intervals. Should no change in the symptoms and fever appear at the end of the third or fourth day, the treatment has failed, and the cause of this will be found in a complication not previously detected or even in an error in the original diagnosis.

The pneumonia should never be treated without topical applications of heat and cold to the posterior and lateral parts of the thorax. The reasons for this are important. The majority of pneumonias are preceded or accompanied by pleurisy. The chest pain of pleurisy is severe and highly repressive to free inspiration and to coughing. The breathing is thereby made shallow and rapid, the cough impeded,—two states tending to lung congestion and consolidation. The pleuritic pain prevents the patient from lying at ease, and prevents sleep. It is of very limited duration,—a day or so,—and is removed efficiently and safely with flaxseed-meal poultices in young children and with hot-water bags in older subjects. Ice-bags are also efficacious for this purpose. External heat is perhaps the better method, as it is more grateful to the sick. The effects are speedily apparent, particularly in infants,—slower and deeper breathing, freer coughs, and quiet sleep.

Acute insomnia is present in most cases. When produced by high fever, chest pain, cough, headache, or feeling of general discomfort it should remain untreated. The elimination of fever is its cure. The sleeplessness is, furthermore, of less moment in this treatment, as sulphur in the small and frequent doses used acts as a gentle hypnotic in the absence of pain. When the insomnia is an early feature of alcoholic mania or delirium tremens, the remedies are digitalis and hyosine hydrobromide.

Cough is an essential feature of every case of pneumonia that is not a hopeless

one. The pneumonic with a cough, however frequent and prolonged it may be, will recover. The pneumonic without cough or with a single, dry, shallow, expulsive effort is in a grave or critical state. Hence any narcotic or sedative drug which produces shallow, rapid breathing and suppresses or represses the cough is harmful and dangerous. The complaints of suffering arising from a severe cough are much more reassuring to the practitioner as regards recovery than the quietude of stupor and cyanosis.

The functional power of the heart must be determined early in the treatment. This is not necessary in children unless a congenital heart defect or a rheumatic endocarditis is found. Where the cardiac contractions are strong, regular, and normal for the degree of fever present, where the valvular mechanisms act harmoniously, no medication is needed. But where valve defects are present, the heart dilated; where the contractions are weak and rapid, irregular or intermittent, digitalis in one daily dose may properly be administered from the beginning. The digitalis effect upon the heart, when once established, must be kept up until the patient is fully recovered and convalescence at an end.

The practice mentioned in textbooks on treatment, of aiding the heart action after it has become inefficient, is both theoretically and practically incorrect. A weakened heart may be restored to adequate force and power by the skillful use of the remedy, but the accompanying dangers,—acute dilatation or embolism,—are so great that the result is less certain than when aid and reinforcement are brought up in advance of the time of need.

The formula of the mercury and sulphur combination used is as follows:—

Hydrargyri Chloridi Corrosivi.....	grn. ss
Sulphuris Præcipitati	5ij
Aquæ Dest. Bullientis.....	f. 3iv

M. Sig.: Shake and give quickly in the dose of one teaspoonful every two or three hours.

The prescription at first sight seems incongruous and incompatible. Even its administration may appear crude and imperfect. The chemical, pharmaceutical, and medicinal properties, however, are positive and correct.

When it is attempted to suspend precipitated sulphur in water, this is found to be almost impossible. The sulphur remains floating upon the surface for many days. Upon prolonged trituration with water in a mortar, a somewhat better suspension on agitation results. It is only when the sul-

phur is triturated or agitated with very small quantities of boiling water that it becomes homogeneously diffusible on shaking, though on standing it sinks mostly to the bottom. Thus made up it can be dispensed for practical purposes.

The sulphur mixture is neutral to litmus. When the sublimate is added to it, litmus shows a feeble acidity. The sublimate undergoes slow decomposition. Although when the remedy is freshly prepared the mercury salt is ingested as bichloride, which can be readily detected in solution with the ordinary tests for mercuric salts, at the end of a week the liquid shows no mercury in solution. Two grains of sodium chloride preserve the bichloride a much longer time.

This combination has further medicinal peculiarities of its own. Given continuously day and night in the treatment until the desired effect is attained, it does not produce mercurial poisoning, stomatitis, enteritis, or nephritis; for when the gastrointestinal tract has been saturated with it, so to speak, the laxative action of the sulphur begins.

Furthermore sulphur, like potassium iodide, is a reliable chemical antidote in mercurial as well as in lead poisoning.

The possibility of giving the mercury bichloride in very frequent doses with safety to the human economy with this admixture of sulphur renders the treatment of the pneumonias by this method prompt and efficient, for the germicidal power of corrosive sublimate operates through the blood, without harm to the patient, against the various pathogenic micro-organisms responsible for these inflammations. With germ destruction come cessation of inflammatory exudation; liquefaction, absorption, or expectoration; rapid cessation of fever, and restoration of the respiratory and vascular correlation peculiar to the normal state.

COPPER SULPHATE IN FISTULAS

A. Campani has used irrigation of copper sulphate with good results in osteo-periostitis with fistula formation. The author reports twenty-nine cases which were cured by this treatment, among them two in which amputation had been contemplated. According to the author's instructions, the fistulas are irrigated for 3 or 4 minutes with a 4 to 5 per cent. aqueous solution of copper sulphate. The solution is to be used as hot as can be borne. The method is said to be applicable to tuberculous and non-tuberculous suppuration, so long as the seat of suppuration is sufficiently accessible.—Klin. therap. Woch., 1912, No. 42.

OBSERVATIONS ON THE TREATMENT OF ACUTE SUPPURATION OF THE MIDDLE EAR*

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I PROPOSE discussing briefly a few points that seem to me to merit a little more consideration than we all are in the habit of giving to this very common disease.

One has to consider somewhat in detail the different processes that are taking place before one can intelligently discuss the management of any. Furthermore, it is well to remember that we are treating an inflammation of mucous membrane and periosteum within a small cavity imperfectly drained and almost surrounded by bone. Normally, air reaches the cavity only when swallowing and then by a collapsed tube one and a half inches long. In health the tympanic cavity is sterile and this also applies to the adjoining cavity, the nasopharynx. In the tympanum are the ossicles covered as a periosteum in places simply by a thin layer of epithelial cells. The labyrinth and middle cranial fossa are separated from it by a thin layer of bone which may or may not be continuous throughout. Having regard to the physiological importance of these structures as well as the tympanic contents it is not surprising that there should be many divergent opinions as to the proper course to follow when inflammation has taken place.

When we consider the terminations of some cases of otitis media we are impressed with the seriousness of the disease we are treating and therefore the importance of proper and timely therapeutic measures. The terminations are, according to Milligan and Windgrave, as follows:

- 1.—Complete cure with cicatrization of the perforation and restoration of hearing.
- 2.—Cicatrization of the membrane with continuance of a sero-mucous discharge within the tympanum.
- 3.—Cicatrization of the membrane with adhesions to the inner tympanic wall, with intra-ossicular adhesions or adhesions of the foot plate of the stapes to the margin of the fossicula ovalis. (This latter must be differentiated from rigidity of the stapes found in oto-sclerosis. This is quite a different process and not related, as we understand its pathology, to any acute inflammation.)
- 4.—Extensive destruction of the membrane with or without exfoliation of the ossicles and with a resulting high degree of deafness.

* Jour. Ophth. and Oto-Laryngology, June, 1913.

5.—Paresis of the intra-tympanic muscles.

6.—Chronic otitis media.

I will omit any mention of the complications, as they are familiar to all and do not come under the title of my paper.

We all have had patients who complain of earache and moderate deafness and in whom there is a mild inflammation of the membrum tympanum as is seen in the dilation of the vessels along the long process and distension of the radial vessels, which course from the handle to the periphery. These cases rapidly improve and all the symptoms quickly subside. Whatever meatal medication has been used, though it has never reached any pathological process, to it is ascribed the credit.

The pathological process present was a swelling of the antro-tympanic muco-periosteum, shedding of the epithelial lining and an exudation of leucocytes. If the disease involves chiefly the area about the tubal orifice the secretion will contain a greater amount of mucus which becomes more opaque before clearing up.

The disease may not limit itself here, but continue as in other inflammations. The underlying factors here seem identical with the indefinite and little understood factors determining the course of any inflammatory process. The exudate may consist of leucocytes, erythrocytes and serum of varying quality as to its coagulation capacity. Thus, we have our cells found as fluid pus or with pus more coagulative in nature. In a typical acute inflammatory process, the cytological picture is as follows: At first the polymorphic leucocytes are found and which are added to in the third day by mononuclear lymphocytes and epithelial cells. Various stages of granular degenerations are found as shown by staining methods. The presence of tympanic epithelium is limited to acute inflammation. White blood cells become fewer as suppuration is prolonged, red blood cells only being found as a rule in the early stages, especially in the membranous type when only a few drops of serum may be found on incising the drum. Exudation may, therefore, reveal three kinds of fluid:

1.—A thick, tenacious mucoid mass very difficult to remove, even by suction.

2.—A scanty sanguinous or serous exudate which may or may not contain red blood cells.

3.—White creamy pus more or less sanguinous associated with many leucocytes and multi-microbic infection, the common type.

In the membranous type, Klebs-Loeffler bacillus is not often found. This process is usually associated with the pneumococci, diplococcus catarrhalis, and another bacteria. Windgrave gives the commonest organisms found in order as follows: diplococcus catarrhalis, pneumococci, streptococci, and staphylococci. The bacillus mucosus and influenza bacillus alter the clinical picture so much that mastoid involvement may be very early and extensive without any marked alteration in pulse, temperature or comfort. When the tympanic cavity is involved in any acute inflammation it seems only reasonable that the aditus and mastoid antrum are also affected. In fact in children the mastoid antrum is, as a rule, the point of greatest involvement, and in some cases the tympanum may be overlooked as the initial infection because of its mild involvement while the infection continues unabated in the mastoid antrum.

The membrum tympanum is involved in various ways. Intralamellar accumulations are common, bullae, clear or opaque, may form or ecchymosis from blood extravasation between the fibrous and cutaneous layers.

The degree of deafness depends not on the condition of the drumhead, but rather on the swelling of the muco-periosteum of the foramina ovale and rotundum interfering with labyrinthine conduction. Furthermore, this whole intra-tympanic chamber may be filled with tough coagulated lymph, imbedding the ossicles and occluding the ostium tubae. Arthritic and mysoital changes interfere with ossicular movement.

With this understanding of the pathology of the disease we are in a position to consider some of the indications for treatment. These are usually considered from two standpoints, viz.: (1) Before the discharge appears through the drumhead; (2) after perforation has taken place. To these I think we should add a third, viz., after the discharge has ceased: for the resulting deafness is more speedily relieved by further treatment.

(1) *Before the discharge appears.* The main indication here is to relieve pain and restore the tympanum to the normal state. This does not necessarily mean to provide an exit for the discharge, for if the case be one in which the inflammation is to be of short duration without the formation of yellow pus under tension, there will, in a majority of cases, be no perforation in the drumhead.

Four conditions may be found on examining the membrane. A reddened membrane with or without bullae; intense injec-

tion of the membrane, radiating vessels with varying degree of injection of the pars flaccida. Here, general rather than local treatment is indicated. The patient should be put to bed, or at any rate kept in the same temperature and a smart purge administered. Internally, the use of aconite, liq. ammoniæ acetatis and Dover's powder will be found of value. If the pain is not relieved by the opium powder one may have to give morphine hypodermically. Externally dry heat is preferred to cold by most patients. The Leiter's coil, hot pad or the small Japanese ovens are convenient methods. Leeches are of distinct service, poultices are usually dirty and favor subsequent granulation if the suppuration process continues with discharge through the membrane. Many combinations are used for instillation into the external auditory meatus. Warm cocaine solutions with laudanum are popular, but I have not been able to assure myself that they do much good. Chloroform vapor is highly extolled by Luc. Carbolic acid and glycerin (1:40) seems to relieve many cases. The carbolic has anesthetic as well as disinfectant properties, but one must not forget that it has escharotic properties as well. Any osmotic action the glycerin may have must be very small and negligible. Gray strongly recommends the use of a solution of iodoform in aniline oil. I have found this of the greatest service and it has saved me, I am sure, from incising a number of drumheads.

Attention to the nose and naso-pharynx should not be neglected. Inhalation of steam containing benzoin, eucalyptus or menthol gives at any rate a feeling of relief to the congested mucous membrane. The naso-pharynx should be cleansed with a warm isotonic spray, forcible douching should be prohibited. Pigments of silver or its derivatives are frequently used, but should be in weak combinations and applied with a minimum of trauma. It is well to make sure that the external auditory canal is rendered sterile and while this is probably impossible from a bacteriological standpoint one must not attempt to realize this by too energetic treatment.

The question of inflation naturally arises. Those opposed to any inflation in middle ear suppuration suggest the danger of forcing infective material into the mastoid antrum and thus infect the mucous membrane. If our previous understanding is correct this has already occurred and one cannot produce by the air douche what already exists. If the Eustachian lining is swollen and firmly in contact so that whatever drainage function it has is temporarily

gone, a gentle inflation seems to me to be indicated and should not be condemned because some overdo it.

Incising the membrane in this class of cases is not called for and is almost always followed in a day or so by yellow pus.

Our efforts are fortunately often followed by a subsidence of the inflammatory process. Assuming, on the contrary, that the case does not improve, exudation continues within the tympanum with or without liquefactions. Intra-lamellar abscesses form and evidences of increased pressure occur as seen by some bulging of the membrane. This usually takes place in the posterior inferior quadrant, but may be confined to the Shrapnell's membrane. If nature has not made an opening, a thing she is prone to do at the site of a lamellar abscess, we are forced to incise the membrane. Gray says, and with him I heartily concur, that paracentesis is performed far too frequently and often without due regard to the pathological process or Nature's ability to combat it. An exception may be made in those cases associated with scarlet fever and diphtheria, a common combination.

The appearance of a yellow spot in a bulging membrane is the indication of paracentesis. In infants, incision of the membrane is not often called for, in fact, Hartman deprecates any surgical procedure in such patients, unless there is decided constitutional disturbance.

A few words as to the operation, if it may be called an operation, may well be made here. The incising of an inflamed membrane without an anesthetic is very painful. The pain may be greatly lessened by the use of a 20 per cent solution of cocaine in aniline oil. A white appearance of the membrane after using this oil denotes a favorable case. There does not seem to be any sloughing of the cutaneous layers as appears when strong carbolic applications are used. General anesthesia, gas, ether or chloroform in children may be required, especially is this the case in patients exhausted by intense suffering. Gas appears to be the most satisfactory general anesthetic.

Generally speaking, it is better to make the center of the incision at the yellow spot. If one is to err, let it be on the side of making it too long, even to extending it into the auditory canal. No danger need be anticipated from cutting the chorda tympani, as it is quite high up and behind the short process. A small stab or scratch is of too frequent occurrence. Some advocate incising also the mucous membrane of

the inner tympanic wall, but this is to be deprecated. The pars flaccida should be incised by a separate cut if it is bulging, as neglect to do this results in a continuation of the pain, when the patient has been assured that very great relief will follow opening his drumhead.

The effect of our incision so far as the discharge is concerned depends on (a) the type of inflammation; (b) the amount and consistency of the tympanic exudation, together with the pressure to which it is subjected. We may get sero pus, yellow pus or nothing at all, the latter in cases of membranous exudation. A distinct yellow spot is never present without free pus. If we have little or nothing to show from our incision we may be sure that in a short time a free discharge will take place.

The position and kind of incision are important. I am in favor of a straight incision in the posterior inferior quadrant extending from a point opposite the junction of the upper and middle third of the long process well down to the floor. This cuts the radiating and circular fibres of the middle layer of the membrane at right angles while their contraction assists in keeping the opening free. A circular incision near the periphery is liable to follow the annulus tendinosus where the circular fibres are most numerous and radiating fibres are absent.

If the pain is not rapidly relieved the question of pus being pent up in the mastoid antrum arises, a complication that need not here be further considered.

A little warm cocaine solution poured into the ear is comforting after a paracentesis without free discharge, in fact a watery solution is of material assistance in encouraging liquefaction. A piece of sterile gauze in the canal acting as a wick is the usual after-dressing. Subsequently dry heat should be continued as it is comforting and assists in relieving the distress.

Treatment after perforation has taken place. Most of us have seen cases in which we have provided free drainage, go on to mastoiditis in spite of all our efforts. I am sure we have often thought we have left undone things we ought to have done, and perhaps done things we ought not to have done. Have we not oftentimes done too much, have we been too impatient or too energetic. We helped Nature by providing free drainage and then turned and ignored Nature's efforts entirely.

My own convictions regarding the best treatment to carry out for the first few days following the discharge is to leave the ear almost alone, aspirating with Seigle

speculum may be permitted, no syringing, no instillations, simply removing the discharge with cotton applicators, in fact Haigmy advises what he terms the dry indifferent treatment which consists simply in drying out the meatus with sterilized cotton wool plugs, after which dry gauze, impregnated with chinolin, naphthol is packed gently into the meatus. This antiseptic has no irritating properties. He maintains that by following this line of treatment complications are rare and the duration lessened by one-half.

As the disease, however, progresses, our treatment should become more active. The use of boric acid as advised by Bezold does not seem to be rational. In the first place it does not reach the tympanic cavity unless there is a large sloughing of the drumhead and even if it does it has so little therapeutic properties that little or nothing should be expected except that drainage would be interfered with. Later in the case when all secretion is lessened a film of powder blown into the tympanum has a slight stimulating effect, probably mechanical, rather than chemical.

Syringing removes the discharge from the external ear. The stream should be directed against the meatal wall. It makes but little difference what fluid is used so long as it is warm and non-irritating. A fluid of strong bactericidal qualities may be very irritating to the tympanum.

Instillations are almost universally used. Boric acid and carbolic in glycerin, bichloride, etc. What one wishes to do is to remove the discharge consisting of mucin, globulin and fibrin in varying amounts with pus cells. Bichloride of mercury forms albuminate of mercury, a very insoluble compound. Most disinfectants precipitate the globulins. If, however, a 2 per cent solution of sodium sulphate to dissolve the mucin and globulin and a 2 per cent solution of sodium carbonate to break up the walls of the pus cells are used we accomplish our object best. To this, one may add a 1:3,000 solution of hydrag. biniodide which does not precipitate the globulin. Hydrogen peroxide has many advocates, and in the presence of a good drainage I think well of it. Some authors, notably Gray, deprecate the use of hydrogen peroxide, or of watery solutions, claiming that the presence of water is badly borne by the middle ear. He prefers diluted rectified spirits, the alcohol apparently preventing the deleterious effects of the water.

Again the question of the air douche comes up. With a large perforation I cannot see that harm results, the same remarks

regarding possible harm apply at this state as in the earliest stages.

One often hears the statement that the perforation closes up and another incision is required. Healing has not occurred in these cases, but the edges of the incision are firmly held together by serum, and probing is all that is required. Occasionally the swollen mucosa shows itself in the perforation as a little pouting point. This may hinder drainage and should be cauterized by silver, or if at all large may be pulled or snared off.

The use of irrigation per tubam has few advocates. I have no experience with it in acute cases, but in sub-acute cases my experience is favorable.

Biers' passive congestive treatment and vaccine have been thorough tried but have not supplanted the other methods.

I attach considerable value to the suction treatment, not the intermittent as with Seigle speculum, but the continual. All recesses of the tympanum are drained, and especially are we able to empty the mastoid antrum. We favor serous exudation which helps to flush the superficial layers of the mucous membrane from within. Our ability to keep this cavity clear may decide the question of further mastoiditis or a chronic aural discharge.

The amount and persistence of discharge influences very greatly our ideas of the inflammatory process. A profuse quantity of yellow pus constantly pouring from the tympanum and filling the auditory canal several times a day surely cannot be secreted by the tympanum alone. The mastoid antrum and possibly the adjacent cells are also involved either as a simple empyema or an empyema plus necrosis. If this discharge persists for several weeks I am satisfied that post aural drainage is a wise procedure. I know I will be accused of operative fervor, nevertheless, I advocate this simple opening of the mastoid antrum for several reasons.

1.—The discharge will stop in a few days at most.

2.—Preservation of hearing.

So long as pus is being secreted in the ear, so much longer is the delicate epithelial lining subjected to necrotic process, and so much more connective tissue results. We see so many cases of obstructive deafness in which a history of former middle ear discharge is given, and which modifies our prognosis, depending sometimes on the objective disturbances in the tympanum that I feel any measure likely to modify the suppurative process should be considered from the prevention of deafness standpoint.

I do not wish to be understood as advocating clearing out the mastoid in these early cases, I mean opening the antrum, simply draining it, not curetting or clearing it out in any way. One will doubtless find a hemorrhagic condition of the mastoid cells, but if actual necrosis has not occurred, there is not any necessity of extensive removal of bone.

In these cases which still persist, a small perforation with a thin serum or mucous discharge, the use of ammonium chloride vapor seems to be especially indicated, also to assist absorption of the swollen mucosa.

In young children we have the ever common adenoid to attend to, and while I realize middle ear infection is not uncommon, following the removal of adenoids, I suggest their removal in otitis media with discharge.

"We may, however, have an inflammation of the main cavity in the middle ear, evanescent in type, and producing no symptoms, but the same inflammation in the attic where it in reality began may be sufficiently acute and accompanied by so much infiltration and swelling of its lining membrane as to close the orifice left below the neck of the malleus, the long process of the incus and the constricted walls at the base of the attic. In this type of case there is usually only slight deafness. A feeling of weight in the ear with more or less pain. Here the inflammatory area is mostly confined to the attic. Bulging occurs early and may easily simulate a small over-hanging granulation through the tip of which pus may appear in using the Seigle speculum."—Lake.

ATROPINE IN STATUS EPILEPTICUS

In a report on the treatment of the status epilepticus Dorner suggests, in the absence of a reliable remedy, the use of atropine in large doses. He states that the remedy acts as a narcotic, regulates the bowels and stimulates the heart. In his experience, epileptics will tolerate five times the maximum dose. The large doses are said occasionally to cut short the status epilepticus completely and frequently to render it less severe and to diminish the frequency of its occurrence, thus eliminating danger to life. In a severe seizure, Dorner has given subcutaneous injections of 1/20 grain of atropine sulphate two or three times in the space of twenty-four hours and has thus inhibited the attack. Atropine is also of value in ordinary epilepsy, where a solution of 1/2 grn. of atropine sulphate in 1/3 oz. of water may be given in doses of 10 to 20 drops, together with preparations of bromine.—Allg. Zeitschr. f. Psych., vol. 69, No. 1.

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ETHYLHYDROCUPREINE IN PNEUMONIA

In pneumonia depending upon pneumococcus infection, H. J. Vetlesen has seen good results from the internal administration of ethylhydrocupreine hydrochloride. The salt was generally given in doses of 0.5 Gm. three times daily so that the daily amount did not exceed 1.5 Gm. In 9 cases thus treated, no other medication was employed; in all, the temperature more rapidly fell by crisis or lysis than with other methods of treatment. There can be no doubt that the drug inhibits the growth of the germ, particularly if it is used in the early stages of the disease. Where there was no effect, the infection generally depended upon some other infection. Disagreeable after-effects were not seen, though one patient took 9.5 Gm. in toto.—Berl. klin. Woch., Aug. 11, 1913.

MAGNESIUM SULPHATE INTRAVENOUSLY IN TREATMENT OF PUERPERAL STREPTOCOCCEMIA

J. A. Harrar, of New York, states that he has employed intravenous injections of magnesium sulphate in nine severe cases of puerperal infection, the bacteria having been demonstrated in the blood in five of the cases reported.

A 2 per cent solution of chemically pure magnesium sulphate was prepared with freshly distilled water. This was filtered and sterilized in half liter flasks in an autoclave. This solution will not hemolyze human red blood cells, and he had found by experience that prepared in this way it would not cause any temperature reaction in the patient. Formerly a 1 per cent solution of magnesium sulphate in physiological salt solution was employed, and a chill or sharp temperature rise frequently followed the injection. The author drew the following conclusions: 1. In the quantities and dilutions described, magnesium sulphate was absolutely harmless when administered intravenously to women suffering with puerperal infection. 2. Magnesium sulphate was of more value early in the course of the infection than after secondary localization had occurred. In the chronic case of secondary thrombophlebitis or pyemia it did not appear to be of benefit. Its action was chiefly upon the organisms circulating in the blood. 3. It shortened the course of the bacterial toxemias in which the bacteria

could not be demonstrated in the blood by culture, and anticipated the establishment of a bacteriemia, and finally it had reduced the mortality in puerperal bacteriemia, especially in streptococcemia, the most fatal form of puerperal infection, from 93 per cent to 20 per cent.

NEOSALVARSAN IN CONCENTRATED SOLUTION

According to E. Schreiber, the technique for injecting salvarsan should not be changed, while with neosalvarsan on the other hand, more concentrated solutions can be safely employed. He now injects 0.75 Gm. of the latter drug, dissolved in only 10 Cc. of saline solution at intervals of 8 days. In this way, the technique is very much simplified as only a syringe will be required. Great care is necessary, that none of the concentrated solution is deposited under the skin as severe pains will result. It is, therefore, best first to aspirate a little blood to make certain that the needle is really in the vein.—Muench. Med. Woch., Sept. 9, 1913.

SODIUM BROMIDE INJECTIONS IN DELIRIUM TREMENS

S. P. Kramer, of Cincinnati, O., writes that he has obtained excellent results with subdural injections of sodium bromide in the treatment of delirium tremens.

Pathologically, delirium tremens presents a classic picture of cerebral edema. The amount of cerebro-spinal fluid is increased to such an extent that one can readily withdraw through lumbar puncture 50 to 60 Cc. This fluid is exceedingly toxic and its injection into dogs brings on a rapid fall in blood pressure. It has been known that in delirium tremens the withdrawal of cerebro-spinal fluid produces a temporary improvement. The author sought for a medication which might be directly introduced into the subarachnoid cavity after the withdrawal of the toxic fluid and which would counteract the edema and act as a sedative. He found that a sterile one per cent solution of sodium bromide might be injected into the spinal canal of animals without immediate or remote harm to the nervous system. He then tried the treatment in a series of twenty cases of delirium tremens.

The technique of the treatment consists in the withdrawal of cerebro-spinal fluid through lumbar puncture in amounts as

great as possible, namely 50 to 60 Cc. The same amount of a sterile one per cent solution of sodium bromide is then injected with a syringe. The author states that there is absolutely no danger from increased subdural pressure. This amount and even as high as 80 Cc. of fluid have been injected into the subdural cavity in an interval of one minute without the least sign of intracranial pressure. Sodium bromide is not toxic to the nervous system. The potassium salt should not be used as it is slightly irritating.

The patients, as a rule, show an immediate improvement, a lessened delirium within a few minutes after the injection. This improvement, however, disappears after a short time, to be followed in from 12 to 15 hours by a permanent disappearance of the delirium. Occasionally after a few days there may be a relapse which is usually controlled by a repetition of the injection. —*Boston Med. and Surg. Jour.*, Oct. 30, 1913.

TREATMENT OF ENURESIS

Simpson writes that in the treatment of enuresis a change of scene will often prove beneficial. Special attention should be paid to the habits of the child. Thus, if the enuresis is most evident during the first few hours of sleep it should be seen that the child urinates just before going to bed and should then be awakened about two hours later and the bladder again evacuated. This is especially important where the urine is alkaline. Regular habits of urinating throughout the day should be established, and he should be encouraged to retain the urine as long as possible. Tea and coffee should never be given, and the last meal and fluid should be at least an hour before bed time. Tilting of the bed, Simpson does not consider to be of any value, but plenty of fresh air and a fair amount of exercise are important.

Drug treatment averages three to six months, as the condition has become more or less a fixed habit before it is regarded in a serious way by the parents. Belladonna, potassium citrate and hexamethylenamine are three drugs of undoubted efficacy, but a careful examination of the urine is to be made before either is employed. In cases where the urine is normal, or at least presents no abnormal features, and the incontinence is the result of some debilitating condition, tonics should be first administered, and then belladonna, commencing with ten minims of the tincture two or three times a day, and gradually increasing to

20 to 25 minims. In most cases 15 minims will be found the maximum dose necessary to be employed. In cases where the urine is extremely acid, the acidity may be reduced by ten grains of potassium citrate thrice daily, and when the acidity has been overcome, the belladonna may be begun. If the general health is not good, two or three minims of liquor strychninae may be added. Where the urine is alkaline, dieting is of first importance, all carbohydrates being prohibited. If it is very alkaline, acid sodium phosphate may be given, and then, when the alkalinity has been reduced, belladonna as above. Where it is established bacilli are in the urine, if this is very acid, reduce with potassium acetate, and administer hexamethylenamine, 5 to 10 grain doses thrice daily. In mixed infection, vaccines may be used to advantage. Ergot should be tried if belladonna fails. If the child is backward mentally, thyroid extract may be tried, 5 grains daily. If the child is highly nervous and has disturbed sleep, 5 to 10 grains of potassium bromide may be added to the evening dose of belladonna. —*Edinburgh Med. Jour.*

COMBINED LOCAL AND GENERAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

Though it has been proved that most cases of tabes and general paresis are syphilitic rather than metasymphilitic manifestations, the results hitherto obtained with antiluetic treatment have not been brilliant probably because the drugs used do not readily reach the micro-organisms. Swift and Ellis have therefore employed both salvarsan and neosalvarsan in small doses in the form of intraspinal injections, but in most cases, the drugs proved too irritating. It was soon discovered that the serum of patients treated with intravenous doses of salvarsan possesses pronounced spirillocidal properties. The technique is as follows: One hour after the intravenous injection of salvarsan 40 Cc. of blood are removed and centrifuged after clotting. On the following day, 12 Cc. of serum are drawn off and diluted with 18 Cc. normal saline solution. This 40 per cent serum is then heated for half an hour at 56°. A lumbar puncture is performed until the pressure is reduced to 30 Mm. and the serum is then allowed to flow in by gravity. Sometimes the patients complain of moderate pains which necessitate the use of codeine and phenacetin. The immediate results are an improvement in the cell count of the cerebro-spinal fluid and a marked effect upon the globulin con-

tents and the Wassermann reaction. It could be proven that normal serum does not show this effect. Frequently, the clinical symptoms also improved to a marked degree.—Muench. Med. Woch., Sept. 9, 1913.

TREATMENT OF TRYPANOSOMA INFECTIONS

Ehrlich's salvarsan has shown the most remarkable effect upon infection with trypanosoma, but it remained for J. Morgenroth and J. Tugendreich to show that the effect can be much enhanced by combining salvarsan with ethyl hydrocupreine, and sodium salicylate. The experiments were conducted chiefly on mice, a large percentage of which were rendered permanently free from parasites with these drugs. The ethyl hydrocupreine was superior in every case to quinine and hydroquinone. One great advantage of this discovery is that it is now possible to accomplish results with much smaller doses of salvarsan and thus avoid disagreeable after-effects. Further experiments will be necessary on human beings, particularly in syphilis, and it is also likely that good results may be obtained with ethyl hydrocupreine and sodium salicylate in malaria.—Berl. klin. Woch., June 30, 1913.

GOLD-POTASSIUM CYANIDE IN SYPHILIS

J. Grünberg has tried the new preparation, gold and potassium cyanide, recommended for syphilis, and reports as follows: A 1 per cent stock solution was diluted with 50 Cc. freshly distilled water, as many Cc. being used as it was desired to inject centigrams. The initial dose was 0.01 which was carefully increased up to 0.03-0.05. The drug was injected in this way intravenously every third or fourth day. The total amount injected was 0.19 to 0.21. Local irritation or after-effects were not seen except slight intestinal disturbances. An undoubted impression was made upon the disease, particularly in case of the primary sore or gummata so that the drug must be regarded as a valuable adjuvant in the treatment of syphilis. L. Hauck has also tested the drug very carefully particularly in lupus and has also seen excellent results. Inasmuch, however, as he has seen one fatal intoxication, he warns against the use of doses commonly recommended. Even doses of 0.02 Gm. act as blood-poison and cause destruction of both red and white cells. The case mentioned had received 0.34 Gm. within 33 days, in 10 intravenous doses, varying between 0.02 and 0.04 Gm. each. On the day before death, the hemoglobin

was 55 per cent, the reds 3,330,000 and the whites 950 and a hemolytic jaundice was very evident. The author thinks it is doubtful if doses small enough to be safe will be therapeutically sufficiently active, unless combined with tuberculin.—Muench. Med. Woch., Aug. 5 and 19, 1913.

BISMUTH SUBNITRATE IN HYPERCHLORHYDRIA

Lion has pointed out that bismuth subnitrate given either an hour before or during meals in cases of excessive gastric secretory activity, will diminish hyperchlorhydria and reduce pepsin formation. The intensity of the digestive process in the stomach is considerably diminished leading to a rapid evacuation of its contents into the intestine. Due in large measure to the nitric acid set free from the bismuth salt, the total acidity, however, remains high. The author recommends that the drug be given in doses of from ten to twelve grammes five or six hours after meals. For x-ray work, however, he warns against both the carbonate and subnitrate. In their stead he uses an oxide of bismuth which he states to be tasteless, readily emulsifiable and which changes to an insoluble oxychloride upon contact with the gastric juice.—Paris médicale, June 7, 1913.

TREATMENT OF OTALGIA ANGIOSCLEROTICA

According to C. Stein, of Vienna, angiosclerotic changes in the blood vessels of the ear may give rise to a variety of painful or disagreeable sensations in the auditory apparatus dependent probably upon local disturbances of circulation. This condition is quite properly termed Otagia angiosclerotica. The diagnosis can only be made if arteriosclerosis is present and other causes are absent, but sometimes the condition can be cleared up by prescribing diuretin.

Nerve tonics, sedatives and antineuralgics as well as local measures only gave rise to transient improvement or more often to no improvement at all. On the other hand, diuretin in doses of 8 grains three to five times a day for several weeks diminished the distress in more than half the cases and eventually caused complete disappearance of the painful sensations.

The results of treatment seem to depend upon the degree of the vascular changes. In every case it is desirable to give the diuretin for several weeks and then to continue the drug if a beneficial effect is apparent.—Wien. Klin. Woch., 1912, No. 26.

TREATMENT OF CARCINOMA WITH RÖNTGEN RAYS

The most important factor in the treatment of malignant growths of the female genitalia with the Röntgen rays is proper exposure of the affected parts. If necessary, therefore, the parts should be thoroughly dilated or incisions should be made so that the rays can reach the neoplastic structures directly. Sometimes a better exposure can be obtained with radium or mesothorium, but both these substances are not so readily available and are very expensive. Carcinomatous tissue does not react so strongly to x-ray exposure as to exposure to the rays of radio-active substances, particularly because the latter can be brought more intimately into contact with the neoplasm and can be allowed to act for a longer time. The pathological changes are however the same; there is first an inflammatory irritation with reddening, swelling, tenderness and increased serous exudation which may last 1 to 2 weeks and is then followed by sclerotic shrinkage and cicatrization. As a rule, the vagina will tolerate the Röntgen rays better than the skin or other mucous membranes. Care is, however, necessary to avoid burns of the external genitalia. The shrinkage which results after several weeks may render further exposure very difficult. A scab will also form which will return even if removed constantly. It is, therefore, advisable to tampon the vagina and to use aluminum acetate bolus.

If radium and mesothorium are to be employed, the proper dosage and filtration are to be determined. As a rule, 20 to 40 milligrams of radium are sufficient unless the tumor is a rapidly growing one. If the dose employed is too large, the patients may complain of diffuse pains in the sacrum and abdomen, rectal tenesmus, diarrhea, fever, anemia and anorexia. Medium doses (150 to 300 milligrams) in rapidly growing tumors should, therefore, not be exceeded. The exposure recommended by E. Bumm and H. Voigts should not exceed 10 to 12 hours at intervals of 1 to 2 days. In some cases, it is advisable to use both Röntgen rays and radium or mesothorium together.

In looking over their histories, the authors find that 13 cases of carcinoma of the neck of the uterus and 4 cases of carcinoma of the vulva and vagina were apparently cured after a treatment lasting on the average 55 days. By apparently cured they mean complete cicatrization with absence of carcinomatous tissue on histological examination. Though the time of observation has not exceeded 6 months, it seems as if

the sclerotic process has proceeded despite the fact that no further treatment was instituted. Hand in hand with the local condition, there has been a marked improvement in the general state of health. This also applies to recurrent cases where a second operation could no longer be considered.

Though the beneficial effect of the rays on the tumor cells can no longer be doubted the degree of penetration has not yet been settled and we cannot tell to what extent distant lymph-nodes are affected. In some cases observed by the author, there were no changes about 5 Cm. from the original focus. Further experiments will be necessary to determine if the action of the rays can be intensified. At all events, every inoperable case and every case after operation should be treated either with the Röntgen rays or the rays emanating from radium or mesothorium.—Muench Med. Woch., Aug. 5, 1913.

TREATMENT OF SKIN DISEASES DURING PREGNANCY

Many pregnant women suffer from urticaria or severe itching probably due to intoxication with proteid substances obtained from the chorionic villi. Normally, antibodies are formed, but in certain cases these are wanting. It has, therefore, been recommended by F. Wolff to inject intra-gluteally the serum obtained from another healthy pregnant woman. The results are usually quite remarkable, even where large doses of morphine were necessary to quiet the patients. In one case, the serum of a patient 14 days after parturition was still active and had the desired effect.—Berl. klin. Woch., Sept. 8, 1913.

CALCIUM SALTS IN SPASMOPHILIA

The calcium salts usually show an excellent effect in the spasmophilic tendency of infants but must be given in sufficiently large dose to be effectual. The best salt, according to K. Bluehdorn, is the crystallized chloride. In all the cases treated the effect was prompt, though only temporary. The drug should be used during the acute attack, though it may be impossible to dispense with chloral hydrate. After the acute attack the patient receives 2 to 3 grams daily until cured. A dietary treatment is generally not necessary while the lime is taken; in fact, it is best to always give the food most suitable for the general condition of the child. The rule, to always use large doses also applies to other conditions in which calcium is indicated, such as eczema,

hemorrhage, bronchitis and asthma. It must always be remembered that calcium does not cure the underlying condition but merely acts in a symptomatic way in that it reduces the general nervous hyperirritability. A good prescription for infants that is at the same time palatable, is the following:

Calcii Chloridi Sicc.....5x
 Liq. Ammonii Anis.....f. 5ij
 Acaciae5j
 Sacchariniq. s.
 Aquæad f. 3xxiv
 M. Sig.: Two and one-half drams six times daily.

—Berl. klin. Woch., June 8, 1913.

CHEMOTHERAPY IN CARCINOMA

R. Klotz believes very strongly in the use of Röntgen rays and radium rays for malignant growths, particularly of the female genitalia, but states that much better results will be obtained if other measures are also resorted to. Various chemical substances supposed to have an affinity for tumor cells were tried but the best success was obtained with electro-cobalt injected intravenously in amounts of 5 to 10 Cc. every 7 days. The serum treatment is also very promising. It is a well known fact that the serum of patients suffering from carcinoma contains substances cytolytic to cancer cells. Patients showing improvement with the above methods therefore receive also intravenous injections of the serum obtained from other patients afflicted with cancer so as to increase the cytolytic in their blood. The results obtained with this combined treatment have been very encouraging.—Muench. Med. Woch., Aug. 5, 1913.

TREATMENT OF DERMATITIS SYMMETRICA DYSMENORRHEICA

According to Matzenauer and Polland, dermatitis symmetrica dysmennorrhica is a dermatosis characterized by peculiar, spontaneous inflammatory lesions, usually occurring in symmetrical areas and apt to relapse. In appearance, the lesions may suggest erythema, urticarial edema, more commonly a moist dermatitis and more rarely a spontaneous necrosis of the skin. Frequently, there are also vasomotor disturbances on part of the circulatory organs and the heart and often psychic disturbances. These lesions are found in women suffering from dysmennorrhoea and are probably due to a general intoxication owing to inactivity of the follicular tissue of the ovaries. In the most chronic case which also exhibited the most severe and numerous lesions, ovaraden-triferrin was

prescribed. After several months, the menses reappeared and the lesions vanished. In a second case still under treatment the menses have not yet reappeared and the skin lesions have persisted.—Archiv. f. Dermat. u. Syphilis, 1912, No. 2.

TREATMENT OF SEVERE SEPSIS

In one case of acute sepsis starting from a streptococcus tonsillitis H. Bennecke injected antistreptococcus serum and collargol solution in the usual dose without the slightest effect. Blood culture showed the presence of streptococci in large numbers. The patient failed rapidly and developed a systolic murmur at the apex so that she was given up as lost. Finally, 400 Cc. of blood were withdrawn and immediately after, 420 Cc. of normal serum were injected into the vein, obtained from 5 healthy individuals. The patient's temperature dropped at once and reached the normal level on the following day. The patient made a rapid and uneventful recovery. All in all, 5 cases were treated in this way and of these, 3 recovered. The object of the procedure is to remove toxins from the system and introduce new antibodies. The most apparent effect is the almost immediate improvement in the appearance of the blood and the general stimulation of the circulation.—Muench Med. Woch., Sept. 2, 1913.

ABORTIVE TREATMENT OF SYPHILIS

In every case of venereal ulcer, Zürn carefully examines the scrapings for spirocheta pallida and if the results are positive, begins with energetic treatment without waiting for secondary symptoms or a positive Wassermann. The treatment consists of excision of the local sore and the use of mercury and salvarsan, either alone or in combination. The abortive treatment will be successful, if the secondary symptoms do not appear and the sero-reaction does not become positive. The latter should be done every 2 or 3 months and must remain negative at least one year after treatment is concluded. Among 53 cases observed 34 were in all probability aborted. It is very difficult to determine how much treatment will be necessary to effect a cure, but in some of the cases quoted, 2 injections of calomel à 0.05 and 0.1 Gm. with 3 injections of salvarsan à 0.5, 0.5, 0.4 Gm. were sufficient, while others received only 6 calomel injections. Wherever possible, preference is always to be given to the combined treatment.—Berl. klin. Woch., Sept. 8, 1913.

Prescriptions

Whooping Cough:

Inf. Ipecacuanhæ0.3: 170 Cc.
 Antipyrinæ
 Sodii Bromidi2 Gm.
 Heroïnæ Hydrochloridi0.01 Gm.
 Syr. Althææad 200 Gm.
 M. Sig.: One teaspoonful to one-half a table-
 spoonful every three hours according to age.
 —Althoff.

Cutaneous Fissures:

Salolisgrn. xxx
 Mentholisgrn. xv
 Olei Olivæ℥ xxx
 Adipis Lanæ Hydr.....3jss
 M. F. ung.
 —Steffen.

Psoriasis:

Hydrargyri Ammoniatægrn. v-x
 Bismuthi Carbonatis3ss
 Zinci Oxidi3ss
 Acidi Carbolicigtt. vj
 Paraffini Moll. Alb.....3j
 M. F. ung.
 —Ravogli.

Anthrax:

Ichthargangrn. xv
 Aquæ Destillatægtt. viij
 Glycerinigtt. xv
 Petrolatiad 5ij
 M. F. ung.

Cystitis:

Acidi Benzoicigrn. x
 Sodii Biboratisgrn. xx
 Olei Gaultheriæ℥ ½
 Aquæ Destillatæad f. 3j

Psorospermosis:

Ichthyolisf. 5iij
 Spt. Aetheris
 Collodionāā f. 3x
 M. Sig.: Paint on ulcers once or twice daily.

Varicella:

Ichthyolis3jss
 Acidi Carbolicigrn. v
 Lanum3iij
 Petrolatiad 3j
 M. F. ung.
 Sig.: Apply on lint once daily after crusts have
 formed.

Spasmodic Laryngitis:

Tinct. Aconiti℥ viij
 Syr. Ipecacuanhæf. 3jss
 Tinct. Opii Camphoratæ.....f. 5iij
 Liq. Potassii Citratis.....ad f. 5iij
 M. Sig.: One teaspoonful every hour or two.

Chancroid:

Szanto applies the following ointment to chanc-
 roids after they have been thoroughly cleansed:
 Acidi Salicylicigrn. xv
 Tinct. Benzoini5ss
 Petrolati3j
 M. F. ung.

Laryngismus Stridulus:

Potassii Bromidi3ij
 Chloralis Hydrat.grn. xxxij
 Syr. Aurantii Cort.....
 Aquæ Menthæāā f. 3j
 M. Sig.: One teaspoonful every half hour.
 —Hughes.

Moschigrn. jss
 Sacchari Alb.
 Pulv. Acaciæāā grn. ij
 Syr. Aurantii Flor.....
 Aquæāā ad f. 3j
 M. Sig.: One dose.
 —Mackenzie.

Hematuria:

Stypticinigrn. viij
 Ergotini Bonjeanigrn. xxiv
 Elix. Aurantiif. 3j

Adenoids:

In the treatment of acute inflammatory proc-
 esses in the nasopharynx due to the presence of
 adenoids, when the condition is sufficiently severe
 to contraindicate early adenectomy, iodine prep-
 arations should be administered internally and
 the general system toned up with saline baths and
 rubbings.

Locally, preparations containing menthol are
 useful:

Mentholis
 Camphoræāā grn. ij
 Olei Olivæ Sterilisati.....3vi
 Misce.

Mentholis
 Camphoræ
 Eucalyptolisāā grn. 4/5
 Olei Amygdalæ Expressi.....3v
 Misce.

These fluids should be dropped in the nostrils,
 four or five drops on each side, at frequent in-
 tervals.

In the older children, ointments such as the
 following may be employed:

Mentholisgrn. iii
 Acidi Borici3ss
 Petrolati3i
 M. ft. unguentum.

Resorcinolisgrn. viiss
 Acidi Boricigrn. xv
 Petrolati3i
 M. ft. unguentum.

Inhalation of balsamics through the nose should
 not be forgotten.

Tincturæ Benzoini
 Tincturæ Eucalyptiāā 3vi
 Alcoholis3iss
 M. Sig.: One teaspoonful to be used by means
 of an inhaler.
 —N. Y. Med. Jour.

Cancer of Esophagus:

For the dysphagia in cancer of the esophagus,
 P. See recommends the following:

Dionini
 Codeinæ Hydrochloridiāā grn. jss
 Cocainæ Hydrochloridigrn. iv
 Ammonii Valeratis
 Aquæ Amygdalæ Amaræ.....āā 5ij
 M. Sig.: Of this solution, 15 drops should be
 taken three or four times a day.
 —Rev. de Thérapeutique.

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FOR THE GENERAL PRACTITIONER

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NOVEMBER, 1913

EDITOR'S NOTES

The Diagnosis of Pregnancy

Pregnancy in the earliest days or weeks cannot always be diagnosed with certainty by physical examination and any new methods recommended are therefore highly welcome. It has been known for a long time that food taken into the gastro-intestinal tract is split up to such a degree that only products are taken up into the system that are suited to the blood and the body cells. If similar proteids are introduced directly into the blood, the body cells will also protect themselves from this foreign material by forming ferments which break up the proteid into simpler bodies. Under physiological conditions, foreign proteids are constantly introduced during pregnancy from the chorionic villi. Every normal pregnant woman therefore forms ferments which are strictly specific and which break up the proteid obtained from the chorionic villi into substances which are no longer toxic for the organism.

It is to the credit of Abderhalden that he has elaborated two methods which permit of the detection of these foreign proteids during pregnancy and even 2 or 3 weeks after confinement. In one of these methods, serum is allowed to act upon placenta in a dialyzing tube and the dialyzed fluid is then tested with the biuret reaction or the more delicate ninhydrin reaction for peptone. Though apparently simple, the meth-

od requires a careful and exact technique. The serum of the patient to be tested must be withdrawn while she is fasting and all aseptic precautions should be observed. Great care is necessary that there is no admixture with red cells and that no hemolysis has taken place. The amounts employed are generally 1 to 1.5 Cc. The placenta must be entirely freed from blood and should be boiled with twice the amount of distilled water for 5 minutes. The water is then to be tested with ninhydrin (1 per cent solution). If only a trace of blue discoloration occurs if 5 Cc. of the water are boiled with 1 Cc. of the test solution for one minute, the placenta is not suited. The dialyzing tubes are to be carefully tested every 8 days for their permeability. The actual test requires a dialyzation for 16 to 24 hours at 37° C. against 20 Cc. distilled water; then 10 Cc. of the dialysate are boiled with 0.2 Cc. of a 1 per cent solution of ninhydrin for one minute. The presence of decomposition products is apparent by a blue discoloration, that often only shows well after the fluid has cooled. It is therefore best not to read off the reaction before 30 minutes.

The optic method is simpler and less apt to be misleading but requires a good polariscope. 1 Cc. of serum is mixed with 1 Cc. of a 5 per cent solution of placenta peptone in physiological salt solution. When the mixture has reached the temperature of 37° C. the degree of deviation is determined and is then accurately controlled from time to time during the next 48 hours. Variations over 0.04° are to be regarded as positive. The mixture should not be turbid. Acid hemolytic, lipemic or decomposed sera are unsuited for the test.

Since these methods have been published in detail, many authors have tried them very extensively and the general consensus is that they are very reliable if all details of the technique are carefully observed. Thus P. Schäfer (Berl. klin. Woch., Sept. 1, 1913) comes to the conclusion that the optical method is simpler and more reliable though, as stated above, a sufficiently accurate instrument may not always be available. In 72 cases of pregnancy, there were only 2 negative reactions; one of these suffered from hyperemesis; in the other, the gestation was extrauterine. Positive reactions were obtained in one case of ovarian cyst and one of adnexal tumor but both women had been confined 2 to 3 months before. With extrauterine hematoceles, the results were not always conclusive. Less reliable results were obtained in case of myoma and carcinoma of the cervix with

the dialysing method while the optical method failed only in one case of myoma.

The two methods are of the greatest practical importance: thus in one case, a positive reaction was possible 8 days after the expected menses, while in another case, a negative reaction with absence of the menses soon proved that conception had not taken place. In many difficult cases, the two methods have enabled the correct diagnosis. The author concludes by stating that further research will be necessary to determine if certain elaborations in the technique may not lead to still more reliable results.

The ideas underlying the methods may also prove of the greatest value in the diagnosis of certain mental conditions. It has thus been found that ferments directed against the ductless glands, noticeably the testes and ovaries are present in certain disturbances and not in others. It is too early as yet, however, to lay down definite rules, though promising results are expected in the future.

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Duodenal Therapy

The direct examination and treatment of the duodenum has only been attempted within recent years. The use of the duodenal sound is extremely simple. 70 to 80 Cm. of the sound are swallowed directly after the evening meal with the aid of some water or milk. The patient then remains on the right side until the following morning. It is not always easy to determine if the end of the sound is really lodged in the duodenum. Examination with the Röntgen rays is the surest method but this examination cannot be applied unless the end of the sound is of metal. It has been stated that air passed through the sound is felt in the stomach but not in the duodenum and that the gas escapes by rectum and not by mouth if the sound is in the proper place. This test F. Rosenberger (Klin. therap. Woch., Sept. 8, 1913) has not found very reliable. It is usually better to let the patient drink some milk and then to aspirate; if the end of the sound is in the stomach, some of the milk will be aspirated while if it is in the duodenum, one merely obtains some bile-stained fluid. A second tube may also be passed into the stomach and the fluid aspirated from each compared though the retching this procedure provokes may dislodge the duodenal tube. Fluid aspirated from the duodenum is usually only obtained after the patient has swallowed something; normally, the fluid is tenacious and clear and then begins to be bile-stained.

Rarely, more than a few cubic centimeters are obtained unless pathological conditions prevail. The reaction is generally alkaline to litmus, and proteids, starches and fats are usually digested by the fluid.

Treatment by means of duodenal sound is indicated particularly in ulcer of the stomach though it may also do good service in chronic gastritis, where it is necessary to give the stomach absolute rest. The tube is left in place 12 to 14 days and the patients usually gain in weight much more rapidly than with other forms of treatment.

The results obtained with duodenal therapy in other diseases are still too uncertain to allow a generalization. Funck has washed out the intestines with dilute soda solution and has not only saved a patient of diabetic coma but has permanently rendered the urine free from sugar. Acid fermentative dyspepsia has been successfully treated by Schmidt with injections of oxygen. Hydrogen peroxide in $\frac{1}{2}$ per cent solution may do good service in obstinate meteorism. Other authors introduce drugs directly into the duodenum. The treatment of intestinal parasitic diseases with duodenal sound seems promising, particularly where nauseating drugs are employed and it is desirable to spare the stomach (ipecac in amebic dysentery, garlic decoction in oxyuris, etc.). All in all, the use of the duodenal sound for diagnostic and therapeutic purposes is not sufficiently practiced by the general practitioner and even the specialist in gastro-intestinal troubles and there can be no doubt that with further experience, duodenal therapy will become more popular and its value in various intractable intestinal conditions appear more evident to the medical profession.

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Fibrolysin in Scars

A scar after a strumectomy had become hypertrophic and caused considerable disfigurement so that the patient insisted upon treatment. Fibrolysin plaster was applied by G. Werdnigg and left in place for 14 days. When this was removed there was a diffuse redness but as soon as this had disappeared no change in the condition of the scar could be noticed. Two months later, however, the scar was much less prominent and in another four weeks only one who knew of its presence could detect it. A year later only slight traces remained. The same patient was later operated for a furuncle; with the aid of fibrolysin plaster the incision promptly healed without the formation of a scar.—Klin. therap. Woch., 1913, No. 20.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Sphincteric Atrophy.—R. W. Jackson, of Fall River, Mass., writes that muscular atrophy about the anus produces more serious consequences than does hypertrophy. The physiology of defecation is studied, and the action of the internal sphincter and of the external sphincter and levators sharply contrasted with their different innervation. This is preparatory to consideration and classification of the causes of sphincteric disuse and consequent degeneration.

Congenital causes are found in imperforate anus and congenital ano-vaginal cloaca. Coincidental with general weakness cases occur in infants, the aged and the extremely ill. Traumatic causes are faults of proctologic operations and after-care, or obstetric lacerations, or due to prolonged divulsion by protruding piles or pro-cidentia. Nerve causes are primarily sympathetic as in rectal stenosis, or central as in spinal cord lesions.

Degeneration or absence of one sphincter without impairment of the other is considered, and the unhappy consequences of sphincteric inadequacy are presented.

Treatment is preventive or restorative. Neither avails much when due to nerve causes, except possibly in luetic cases. Of first importance is the minimizing of trauma, both obstetric and proctologic (especially sphincteric incision). Repair of trauma should be immediate and accurate. Later attempts are much more difficult and uncertain on account of atrophic muscular changes, and often results must depend on cicatricial contraction and adaptation of other muscles, especially the levators, to sphincteric duty. Restoration of long overstretched muscles is largely dependent on general treatment.

Sphincteric deficiency is a troublesome problem to every practitioner, and the prognosis is uncertain.

Middle-Ear Deafness.—G. E. Shambaugh, of Chicago remarks on the confusion that exists regarding the diagnosis and especially the prognosis of obstructive middle-ear disease. He thinks it would be a distinct advantage if the term chronic catarrhal otitis media were dropped and "chronic simple otitis media" or "chronic purulent otitis media" were substituted for it, as conveying a better idea of the pathology, which is that of infection of the membrane lining the middle-ear chamber, with round-cell infiltration and thickening and later formation of fibrous connective tissue. Exacerbations are liable to occur, usually from infections of the nasal pharynx. A persisting tubal occlusion may or may not exist, and, if so, is shown by a more or less marked retraction of the drum membrane. The defect in hearing is due to obstruction in the conducting mechanism, chiefly by fixation of the stapes. The hearing defect is apt to be aggravated during exacerbations, from the closing of the tube. The retraction of the drum membrane is no index to the defect in hearing. It may be a permanent after-result when the tubal occlusion has disappeared. The reason why certain patients with recurring ear infection suffer so little or not at all in their hearing is due to

the absence of inflammatory adhesive bands which are a common result of the condition in the tympanum. The difference in their development will make a marked difference in the hearing capacity. The prognosis as regards deafness is on the whole better if the tubal occlusion has disappeared and the changes in the tympanum are less active. A persistent tubal occlusion, on the other hand, is of bad significance. Another factor in the prognosis of long-standing cases is the occurrence of secondary degenerative changes in the cochlea. The labyrinth defect can best be detected by locating the higher notes of the Galton whistle. Generally speaking, the chances of improvement in hearing are less in cases not dependent on occlusion of the tube and where adhesive bands in the tympanum have been formed, causing deafness. In cases dependent on the persistent occlusion of the tube, especially with secretions in the tympanum, treatment is more usually effective. It is important to note the conditions in the nose and throat that cause or keep up the ear trouble, and their examination requires care and judgment. The general and indiscriminate operating for disease in these parts should be discouraged, but adenoids and repeatedly infected faucial tonsils always call for operation.—*Jour. A. M. A.*, Sept. 27, 1913.

A Novel Procedure for the Relief of Headache.—In the "Southern Medical Journal" for September Max Henning reports, with some hesitancy, a case of cure of headache of long standing following the removal of superfluous skin around the neck. The patient, it seems, was a physician, forty-eight years old, who from about the age of thirty had suffered from gastric and intestinal indigestion. After a time this became accompanied by headaches, which finally grew so severe that he was almost entirely incapacitated for his professional duties. These would occur about twice a week and last from half a day to three days, and any straining or lifting, or any sudden excitement, would at once bring one on. Hot applications to the head were the only measure that afforded even partial relief, until one occasion when the patient suffered so intensely that he threw himself across the bed and involuntarily grasped the back of the neck firmly with his hand. Within ten minutes, much to his surprise, the pain almost ceased, and the same thing occurred in subsequent attacks; though when the pressure was removed the pain would gradually return. He first consulted Dr. Henning early last spring, and under the treatment prescribed by him there was some improvement in his digestive trouble, but the headaches continued much as usual. The doctor had noticed a relaxed condition of the skin of the neck, and at length it occurred to him that inasmuch as the pressure of the hand, tightening the skin, had produced temporary relief, the removal of the superfluous skin might perhaps afford permanent alleviation. Accordingly, in two operations he cut away four elliptical strips of skin about four inches long and one inch wide, two of which were taken from the sides and two from the front of the neck. The result was most gratifying, for since the second operation the patient has been entirely free from his headaches.

This case certainly presents many interesting features. Habitual headache has been attributed to innumerable causes, of the most varied character, but never before has an instance been re-

corded in which it was apparently due to redundancy of the skin of the neck. It is not very probable that the cure in the case was the result of the moral effect of the surgical treatment, for only partial relief was afforded after the first operation, when the two pieces of skin were taken from the sides of the neck, and it was only after the second operation, when an additional quantity of skin was removed, that the relief from the headaches was complete. Then we must remember that the patient was a practicing physician forty-eight years of age, and so not likely to be affected by such psychic influence. The explanation suggested by Dr. Henning is that the removal of the considerable amount of skin from the neck "tightened up the skin enough to support the circulation there."—*N. Y. Med. Jour.*

Roseola Infantum.—"Roseola infantilis" was a name used for a skin disease some fifty years ago. Its use was too comprehensive and the disease has been left out in recent text-books on dermatology. After stating as much, J. Zahorsky of St. Louis says that for many years he has been interested in a symptom complex of febrile erythema, occurring almost exclusively in infants, which was included with rubella and toxic erythemata under the above title and to which Zahorsky gives the name "roseola infantum." "The patient is almost always a child under three years of age who suddenly becomes ill with a high fever. The physician is called and on an examination of the patient finds nothing to account for the fever. The fever continues, but no diagnosis can be made on the second, third or even fourth day. Then the temperature drops to normal or nearly so and the child, who has been drowsy and irritable, sits up and commences to play. Coincident with the decline in the temperature a morbilliform rash appears on the face and neck and rapidly spreads over the body. The eruption disappears in twenty-four to forty-eight hours. There are no complications or sequelae. No desquamation follows the disappearance of the rash." The symptomatology is described more fully than the above and the etiology and diagnosis discussed. The disease is not contagious and its active cause is unknown. It may possibly be due to an intestinal intoxication, but Zahorsky has not observed much evidence of that. There is only one other exanthem to be seriously considered in diagnosis and that is German measles or rubella. In rubella the prodromal fever is shorter and rises with the eruption. It is contagious, affecting children of all ages and is most common in the spring. The lymph-nodes are enlarged. In roseola the prodromal fever lasts from three to five days and disappears with the eruption; it occurs mostly in infants, prevails largely in fall and in winter and is not contagious. There is no enlargement of the lymph-nodes. A number of cases are reported.—*Jour. A. M. A., Oct. 18, 1913.*

SUBACROMIAL BURSTITIS resulting from indirect violence (the usual cause), is often, if not always, associated with and due to injury to the supraspinatus tendon. A calcareous deposit often forms in the tendon which in the x-ray plate must be distinguished from fracture of the greater tuberosity.—*Amer. Jour. Surg.*

A NOT UNCOMMON CAUSE of persistent pain in the knee is bursitis sartorius, semimembranosus beneath the inner hamstring tendon insertions.—*Amer. Jour. Surg.*

Book Notes

GOULD AND PYLE'S POCKET CYCLOPEDIA OF MEDICINE AND SURGERY. Based upon the second edition of "Gould and Pyle's Cyclopedic of Medicine and Surgery." Second edition, revised, enlarged and edited by R. J. E. Scott, M.A., B.C.L., M.D., of New York.—Into the pages of this compact little volume is crowded an immense amount of information. The general style and scope is the same as in the previous edition, though the incorporation of many new articles has necessitated the addition of 155 new pages. Each article is short, crisp and to the point, and in many cases amplified by an illustration. Especially valuable is the matter in tabular form and the comprehensive system of cross references. The great amount of matter in so small a volume (3½ by 6 by ¾ inches) is made possible by the use of a small but very clear type and an extremely thin paper. The typographic work is excellent and the work is bound with a handsome black leather cover. (P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia. 1913. Price, \$1 net.)

PROGRESSIVE MEDICINE: A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart A. Hare, M.D., assisted by Leighton F. Appleman, M.D. (September 1, 1913).—Diseases of the thorax and its viscera, including the heart, lungs and blood vessels, is the subject of an interesting chapter by William Ewart, M.D., F.R.C.P. Gotthel's review of dermatology and syphilis is very thorough and interesting. He gives, among other things, interesting discussions on the etiology of eczema and the pyodermias, parapsoriasis, blenorrhagic keratosis, and syphilis. Edward P. Davis, M.D., contributes an article on obstetrics in which he discusses the diagnosis of pregnancy; the metabolism of pregnancy; disease of the thyroid during pregnancy; labor and its complications; obstetric surgery, and the new born. The volume is concluded by an article on the diseases of the nervous system by William G. Spiller, M.D. (Lea & Febiger, Philadelphia and New York. Paper. Price, \$6 per annum.)

BAKTERIOLOGISCHES TASCHENBUCH. Die wichtigsten technischen Vorschriften zur bakteriologischen Laboratoriumsarbeit von Dr. Rudolf Abel (Siebenzehnte Auflage).—This handy little volume appears as the seventeenth edition since its first appearance in 1889, a notable testimony to its worth. The text matter has been thoroughly revised and brought up to date. To the student or experimenter in bacteriology there could scarcely be a handier little vade mecum than this. The blank pages between the printed pages the student will find convenient on which to make annotations. (A. Stuber's Verlag, Würzburg. Price, M. 2.)

PHYSICIANS' VISITING LIST FOR 1914.—Now in its sixty-third year of publication, we find this very practical and hand book better than ever. It is handsomely bound in black flexible leather with a pocket at the back for loose memoranda. In addition to the blank pages arranged for keeping the records of 25 patients a day, the book also contains a great deal of useful information and tables, including a calendar for 1914 and 1915, table of signs, incompatibilities, poisoning, metric weights and measures, dose table, quaran-

tine periods in infectious diseases, asphyxia and apnoea, comparison of thermometers, etc. Blank pages are also provided for recording addresses of patients and nurses, accounts asked for, memoranda of wants, obstetric engagements, vaccinations, records of births and deaths, cash account, etc. The price of this book is \$1.25 and we are sure that it will prove worth many times that amount to any physician. We note that the book may also be had in editions to accommodate 50, 75 and 100 patients per day or week. (P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.)

ELEMENTS DE RADIOLOGIE. Diagnostic et thérapeutique par les rayons x, par le Dr. E. Albert-Weil, chef du laboratoire de radiologie de l'hôpital Trousseau. Un vol. grand in 8 de 492 pages, avec 261 gravures dans le texte.—With the vast amount of work that has been done in recent years and with the many improvements both in apparatus and in technique that are constantly being made, radiology has become a most important branch of medicine and one which no physician can afford to ignore. This work of Albert-Weil, because of its completeness and of its clarity of exposition, will prove a valuable work not only for reference but for consecutive reading and study. The first part is devoted to a study of the principles involved and to technique. The second part is devoted to the use of the x-rays for diagnostic purposes and the text is supplemented with many excellent charts and illustrations. The third part is devoted to the therapeutic application of the x-rays. (Price, 15 francs. Librairie Felix Alcan, Paris, France. 1913.)

DIÄTETISCHES KOCHBUCH von Sanitätsrat Dr. Otto Dornblüth und Frau Hedwig Dornblüth. Dritte, völlig umgearbeitete Auflage.—A practical and comprehensive work on dietetics. In addition to the discussions of the dietetic values of the various food stuffs, the authors give detailed directions for the preparation of the various articles of food. Some 300 pages are devoted to this subject alone. Of course, many of the dishes are distinctively German and some of them call for articles not always easily obtainable in this country, yet on the whole we believe that the receipts will be found very useful. The last section of the book outlines special diets for use in special diseases. (A. Stuber's Verlag, Würzburg, Germany. 1913. Price, M. 6.)

BEITRÄGE ZUR KLINIK DER INFektionsKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG (mit Ausschluss der Tuberkulose) herausgegeben von Professor Dr. L. Brauer. Band 1, Hefte 2 und 3.—The general scope and the high scientific character of these publications we commented on in these columns in a recent issue. The first of these volumes contains the following articles: Hegler, "Epidemic Sublingual Sialoadenitis"; Hannes, "Framboesia"; Abderhalden, "The Detection of Foreign Bodies in the Blood by Dialysis"; Leschke, "Sero-diagnosis of Tumors"; Hässner, "Regeneration of Kidney Epithelium in Diphtheria"; Römer, "Bacteremia in Abortion"; Lüdke, "Mixed and Secondary Infections"; Uffenheimer, "Anaphylaxis in Acute Exanthemata." There is also a reply by von Schilling to Arneht's article in the first number on the neutrophile leucocytes. In the third volume the following articles appear: Lindemann, "Infection in Criminal Abortion"; Lüdke and Körber, "Antibody Production"; Gebb, "Serumtherapy of Ulcus Corneae

Serpens"; Bruck, "Anaphylaxis in Dermatology and Venereology"; Fejes, "Colisepsis." A number of the articles are illustrated with handsome lithograph plates in colors. (A. Stuber's Verlag, Würzburg, Germany. Price, Heft 2, M. 8; Heft 3, M. 6.)

Pamphlets Received

The Acid Test in Therapeutics, by John Aulde, M.D., of Philadelphia. Reprinted from the Medical Record, June 7, 1913.

The Failure of Dr. R. S. Cummings to Protect Guinea Pigs Against Tuberculous Infection with the Vaccine of Dr. Carl von Ruck, Asheville, N. C.

The Neglected Cold, by John B. Huber, A.M., M.D., of New York. Reprinted from the N. Y. Med. Jour., March 9, 1912.

The Possible Functions of the Life Insurance Company in the Conservation of Health, by Eugene L. Fisk, M.D. Address delivered before the American Assn. for the Advancement of Science.

Fifty-first Annual Report of the Board of Managers of the North-Eastern Dispensary in the City of New York.

The Buried Animal Suture, by Henry O. Marcy, A.M., M.D., LL.D., of Boston, Mass. Reprinted from the Lancet-Clinic, Nov. 16-23, 1912.

Report on Post-Mortem Examinations in the United States by the Public Health, Hospital and Budget Committee of the N. Y. Academy of Medicine. Reprinted from the Jour. A. M. A., June 7, 1913.

Würzburger Abhandlungen aus dem Gebiet der Praktischen Medizin. XIII Band, 9 Heft. "Beitrag zur Kenntnis des Lupus vulgaris der oberen Luftwege," von Dr. Fritz Lill.

The Trail of the Consumption Crusade, by Thomas J. Mays, M.D. Published under the auspices of the Trustees of the Philadelphia Chest and Throat Clinic.

Membranous Dysmenorrhea.—K. I. Sanes of Pittsburgh, Pa., describes the physiology of the endometrium and of menstruation in quite full detail and argues from the findings that membranous dysmenorrhea does not depend on endometritis for its occurrence. The inflammatory appearance of the lining membrane of the uterus is physiologic, and if the picture of menstrual membrane could prove a endometritis, then all menstruating uteri have endometritis. He quotes from Van Herwerden (The Physiology of Reproduction) that in certain monkeys a membrane is always cast off during menstruation, and if it is considered physiologic there why should it be considered unphysiologic in the human species? Is it because it is rare in the human female? he asks. He says it is, however, a great deal commoner than is generally supposed. It is not always accompanied by pain and naturally such cases are not reckoned as membranous dysmenorrhea. Dysmenorrhea is common and there is no reason why it should not occur in cases where a membrane is cast off. He quotes a number of authorities to show that a menstrual membrane is not inconsistent with fertility and offers a suggestion that the formation of the membrane may be due to a more excessive stimulation of the process by the ovarian hormones.—Jour. A. M. A., Oct. 18, 1913.

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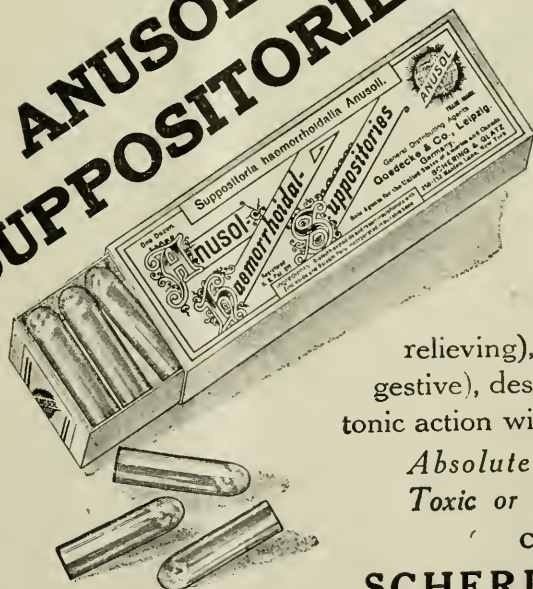
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BLACK HAND ENSIGN.—In the spring of '85 a reporter for the "Arkansas Traveler" died. The day after the funeral a visitor to the office found the editor and his staff talking about their late associate.

"It has been a sad loss, friends," the visitor said; "a sad loss, indeed." He sighed and looked about the room. "Ah, I am pleased to see," he went on, "that you commemorate the melancholy event by hanging up crape."

Opie Read frowned. "Crape?" he said. "Where do you see any crape?"

"Over there," said the visitor, pointing.

"Crape be durned!" said Read. "That isn't crape; that's the office towel."—Los Angeles Express.

THE EGG AS AN EMBLEM OF HEREDITY.—In an entertaining article on proverbs and eggs (it must be admitted that sometimes the age of the latter strongly suggests the antiquity of the former) a writer in the "British Medical Journal" discourses on the egg as the emblem of heredity. A little-known proverb bridges over the gulf between the egg in embryology and the egg in diet: "An egg will be in three bellies in twenty-four hours." The hen's is one and the eater's is another, but, the author asks, who will guess the third? There is a Greek proverb, "A bad crow lays a bad egg," which represents the popular idea of morbid heredity, but neither eugenics nor Mendelism bears it out altogether, for an apparently good crow sometimes lays a bad egg, and an undoubtedly bad crow occasionally lays a good one. There is, however, here as in so many other cases, a proverb which seems to offer only a qualified approval of the statements that a bad crow lays a bad egg. It is this: "Many a good cow hath but a bad calf." So it often is with proverbs, and the reason is not far to seek, the proverb-maker wishing to give the proverb-user something to suit all contingencies. The Latin equivalent is *heroum filii noxae*, and Ray says "Aelius Spartanus in the life of Severus shows, by many examples, that men famous for learning, virtue, valor or success have, for the most part, either left behind them no children or such as that it had been more for their honor and the interest of human affairs that they had died childless." One might add many more instances out of modern history. Edward the first, a wise and valiant prince, left Edward the second; Edward the black prince, Richard the second; Henry the fifth, a valiant and successful king, Henry the sixth, a very unfortunate prince, though otherwise a good man. And yet there are not lacking in history instances to the contrary, as, among the French, Charles Martel, Pipin and Charlemagne in continual succession. Joseph Scaliger, the son, was, in point of scholarship, no whit inferior to Julius, the father. There are, however,

many contradictions in the matter of heredity, and some of the greatest men would never have been in the world at all if their parents had been successfully segregated or skilfully asexualized on modern principles. It is a tangle of tangles, and one is tempted to put Mendelian results into a new and up-to-date proverb to the effect that "it is hard to tell who a man's father was till you see what his son is going to be," or, perhaps, "you know not the hen till you have the chick's egg."—Med. Record.

DISINFECTION OF LETTERS A CENTURY AGO.—In a recent issue of the "London Times" was printed the following item published in that paper under date of Sept. 16, 1813, relative to a device for preventing infection by fumigating letters coming to England from ports where the plague was then epidemic:

"Plague-infected letters being sometimes received in this country from ports in the Mediterranean, where the plague prevails, without its being known here, the merchants at the foreign port keeping it secret to avoid quarantines, and for other obvious purposes, no letter from the Levant, therefore, should ever be read until it has been fumigated open. Information of the plague now unhappily raging at Malta was suppressed by the natives for nearly three weeks, to the imminent danger of all correspondents. This alarming circumstance, so frequently occurring, the late symptoms at Wapping and the present plagues at Odessa and Smyrna, as well as at Malta, have induced an English chemist to construct a convenient machine for fumigating foreign letters, and also for purifying the infected air of rooms, ships, etc., with the oxygenated muriatic acid gas of M. Guyton de Morveau, a celebrated French chemist. It is now used in the hospitals of Paris, and is the same that prevented a contagion spreading in Spain. It is allowed by all British chemists to be the most efficacious ever discovered, being more convenient and more diffusive than that used on board ships of war. for the discovery of which £5,000 were voted by Parliament. Subscribers of seven pounds, at the bank of Messrs. Everett, Walker and Company, opposite the Mansion-house, London, will be furnished with the mahogany chest, apparatus, composition, and instructions for making and using the disinfecting gas the vessel attending which will fumigate daily for six months, by opening it only. As soon as an hundred are subscribed for, the delivery will commence. They should be exported to every part of the world at this crisis. when plagues afflict three places, as it will prevent infections of all sorts, the yellow fever not excepted."

It would appear from the concluding sentence that some doubt had already at that time arisen as to the transmission of yellow fever by fomites. —Boston Med. and Surg. Jour.

HIPPOCRATES ON STONE IN THE BLADDER.—Hippocrates' few paragraphs on stone constitute the first written account of this condition and contain points of more than ordinary interest. The decrease in stone formation which physicians of the present decade wonder at may possibly be explained by Hippocrates' theory of stone's cause. He says that concretions result from carelessness in the choice of water; that men become affected with stone and are seized with distress of the kidneys, strangury and sciatica, and even become ruptured when they are so disregardful of

the rules of health as to drink all sorts of water. He warns against water taken from great rivers into which many other streams empty, or from a large lake into which many rivers flow, particularly if these streams have their sources a great distance from where they empty. For, as our author states, it is quite impossible that all such mixing waters could resemble each other, "one kind is sweet, another saltish, aluminous, and some flow from thermal springs; and these being mixed up together disagree, and the strongest part always prevails; but the same kind is not always the strongest, but sometimes one and sometimes another, according to the winds, for the north wind imparts strength to this water, the south to that, and so also with regard to others." Hippocrates argues that waters of such mixed composition will deposit mud and sand in great amounts, and that the ingestion of such deposits results in stone formation. He hastens to explain the exemption of some persons from calculi, although drinking water with mud and sand, by telling us that "when the bowels are loose and in a healthy state, and when the bladder is not hot, nor the neck of the bladder very contracted, all such persons pass water freely, and no such concretion forms in the bladder; but those in whom the belly is hot, the bladder must be in the same condition, and when preternaturally heated its neck becomes inflamed, and when these things happen the bladder does not expel the urine, but raises its heat excessively." One almost waits for Hippocrates to point out the causative influence of stricture and enlarged prostate on stone formation, but of these factors nothing is said.—*Amer. Jour. Derm.*

NO CHRONIC BONE SWELLING should be subjected to operation without excluding syphilis.—*Amer. Jour. Surg.*

THE DIAGNOSIS OF A MONSTROSITY.—W. T. Bertrand tells the story of a young man who started to practice medicine in a village of Indiana in the days when medical practice acts were not as stringent as they are at the present time. It could not be ascertained that any institution had conferred upon him the degree of M.D. He was soon called in to attend an obstetrical case. He made his examination, called the husband to one side, and said: "I hate to convey this information to you, but your wife is giving birth to a

monstrosity. There are no bones in the head, it has but one eye, and its nose is where the other eye should be." It is needless to state that a genuine practitioner, who was then summoned, found a breech presentation and soon delivered a healthy boy.—*Stories of Doctors, etc.*

TRICHOTILLOMANIA IN INFANCY.—C. Rasch records a case of trichotillomania, some features of which are probably unique. The patient was a female child, aged 4 years, whose baldness was at first diagnosed as alopecia areata. Apart from a history of worms, there was no record of any previous illness. There was no neuropathic taint in the family, and the parents were alive and well. The child, who was vivacious and seemed mentally and physically normal, had lost patches of hair at irregular intervals since she was 6 months old. In hospital a sharply defined bald area, a little larger than a child's hand, was found on the left side of the head and temple, extending exactly to the middle line of the head. During the child's stay in hospital the bald area spread backwards in the form of a triangle, one side of which was in the median sagittal plane. A few short and light-colored hairs were scattered over this area. Later another bald area appeared on the right temple, and formed a rectangular triangle. When the hair on one side of this triangle was cut close to the scalp it ceased to fall out, while the baldness spread at the point where the hair remained uncut. There was such complete analgesia over the cranium that the hair could be pulled out painlessly, although it was firmly attached to the scalp, except in a few places. A close watch set on the child led to the observation that she sucked her right thumb vigorously, while with her left hand she plucked hair out of her scalp with lightning-like rapidity, and placed it in the hollow of her right hand, where she rubbed it with the second and fourth fingers of this hand. She did not apparently attempt to eat the hair, which, when it had been held for some time in the right hand, was let fall and replaced by another lot. Analgesic areas were scattered over the body, and deep pin-pricks of the scalp evoked no pain; but there was no anaesthesia of the cornea or pharynx, and the eyes were normal. Discussing this case, the author interprets the thumb sucking as an act of infantile autoerotism, and he thinks that the trichotillomania was also an expression of sexual perversion. But it is difficult to account for the

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definite patterns which the bald patches assumed; and in previous records of trichotillomania in children the hair was pulled out from one round spot or from all over the scalp. It may be added that *Trichocephalus dispar* was found in the faeces, and that a blood count showed 13 per cent. eosinophilia.—Brit. Med. Jour.

IN EDEMA OF THE LUNGS of cardiac origin a small dose of morphine often does more good than all the stimulants. It may be the only treatment needed.—Amer. Jour. Surg.

RACE SUICIDE AND RACIAL STAMINA.—Professor Pearson believes—and we are inclined to think that his belief is right—that the value of the child population of a nation is fixed, in general, by the physical value of the mothers. He finds that artificial feeding and the many other causes which medical men are in the habit of regarding as certain factors of infant mortality have, on the whole, less danger to the community than is to be found in a defective maternal parent vitiated by disease or by hereditary enfeeblement. This is a deduction which should be pressed home. In every civilized country the birth rate is falling; that fact alone is not sufficient to cause any uneasiness to those who rightly understand the difference between civilization and savagery in regard to this aspect of motherhood. With the economic factors to be considered it is easy to see that the child-bearing period of women in civilized communities is steadily contracting, and that the physical enfeeblement of women exposed to the stress and strain of modern life must inevitably lead to the physical deterioration of subsequent generations unless something more than at present is done for the benefit of the coming race. That being the case, the real question at issue is not whether the birth rate is declining. With these factors present it is inevitable, and indeed expedient, that the birth rate should decline, for no honest parent can afford to bring into the world children whom he cannot fit with a strong constitution and endow with that physical and social means of safeguarding their position when they are grown up. On the contrary, the question concerns not the number of births, but the value of the births recorded. A declining infant mortality must insure that a larger number of children will reach the age of puberty; the prophylactic, ultra-humanitarian measures of to-day make it possible for the weakest and unfittest to survive along with the strongest and best. Indeed, the tendency is to safeguard the interests of the former at the expense of those of the latter, a tendency which is bound ultimately to affect the race detrimentally.

The whole matter of the birth rate in reference to the value of the births and the status of the community cannot be settled on statistical grounds alone. Nevertheless, we are duly grateful to Professor Pearson for drawing attention to certain outstanding facts which medical men are apt to overlook. Such semi-popular lectures should make the nation alive to the facts that ought never to be forgotten, but which are, unfortunately, remembered by comparatively few public men. One of these facts is the desirability of training the rising generation so as to perfect its physique and enhance its means of resistance to factors that act adversely upon less resistant organisms. This fact should be acknowledged by every public man, and it is a great pity that the unfortunate boggy of alleged "militarism" still interferes with the due appreciation of the benefits

to be derived from such physical and early training as military discipline entails. The recent pronouncement that no such training will be allowed in the public elementary schools is a deplorable testimony to the apathy and short-sightedness of a nation that still regards party politics as of far more importance than a healthy birth rate. When Professor Pearson again lectures on the subject we commend to him to pay some attention to the position of the father. An investigation into the antecedents and environmental conditions of the father should prove interesting, and we venture to think that some of the results to be obtained and such a study ought to be of decided value to the community.—The Hospital.

GLASS AND TUBE DRAINS should never be allowed to rest against a large blood vessel (e.g., the epigastric, the internal iliac). They may cause fatal erosion.—Amer. Jour. Surg.

THE ORIGINAL FLY SWATTER.—Dig the Old Testament out of some remote and cobwebbed corner of your library and read up about that one of the seven plagues of Egypt in which flies held the limelight, the land being corrupted by reason of the swarm of them. Then there was our genial old friend Beelzebub (for whom most of us have since our Sunday-school years cherished a sneaking admiration; he seems not to have been a bad sort at all—quite the contrary). The Canaanites (or was it the Philistines?) awarded him the well-deserved honor of a temple; for his name, originally Baalzebub, meant "destroyer (or swatter, as we should say to-day) of flies." The Israelites being rather down on the Philistines at that time would seem to have discovered an adverse meaning to the name of this god, as of "prince of dung or filth." So any way we consider him, Beelzebub had to do with flies (for filth is the natural habitat of flies).

It is no twentieth century discovery that flies are germ carriers for a number of diseases. The fact was known, no doubt, before Beelzebub, and has as undoubtedly been known since his time. It would be interesting to trace the history of fly criminology in the matter of disease, but it must suffice here to go back no further than to the physician Sydenham, in the seventeenth century, whom doctors like to revere as the modern Hippocrates. Then jump to the middle of the last century, when a British navy surgeon reported cholera aboard his vessel, which was at that time cruising in the Mediterranean; he observed that both flies and cholera would disappear almost simultaneously whenever his ship left port and went to the flyless sea. On resailing to Malta harbor, where the cholera prevailed, though there was no officer or crew communication with the shore, the flies returned from landward and with them, in increasing virulence, the cholera; on returning to the open sea the flies again were left behind, and with them the cholera.

In our Civil War hospital gangrene was known to be conveyed by flies. About the seventies flies were discovered to transmit the germ of anthrax, a disease of animals which frequently attacks butchers, tanners, shepherds and wool sorters. Then Lord Avebury came in rather strong in calling flies "winged sponges, spreading hither and thither to carry out the foul behests of disease." Then in the eighties, the noble science of bacteriology having become sufficiently developed, the germ of cholera was discovered in flies caught in hospital wards. And a cholera-infected fly

having been permitted to drink a glass of milk that had previously been made germ-free, a single drop of that milk yielded under the microscope one hundred colonies of cholera germs. Then consumption germs were found in flies caught in a room that had previously housed a consumptive patient. Before the nineties it was demonstrated that flies could transmit typhoid germs. Everyone knows that physicians investigating the medical aspects of our Spanish War found that flies swarmed over infected matter in the pits and then visited and fed on the food prepared for the soldiers in the mess tents. In some instances, where lime had recently been sprinkled over the contents of the pits, flies with lime-whitened feet were seen walking over the food. Officers whose mess tents were screened suffered proportionately less from typhoid fever than did those whose tents were not thus protected. Typhoid fever gradually disappeared in the fall of 1898 with the approach of cold weather and the consequent hibernation or death of the fly. Then in the Boer War admissions to the military hospitals fell with the destruction or hibernation of the flies, on the advent of cold nights of May and June (the southern hemisphere cold season); "in July the Blomfontein hospitals had become convalescent camps."—Dietetic & Hyg. Gazette.

IF VOMITING AFTER A LAPAROTOMY PERSISTS in spite of treatment, especially in cachectic individuals, inspect the wound. Occasionally the cause is prolapse of abdominal contents through the opened incision.—Amer. Jour. Surg.

MIRABEAU AN ABNORMAL INFANT.—Mirabeau—the great Mirabeau, Honoré-Gabriel Riquetti, who had so strong an attraction for Carlyle that the latter called him "world compeller and ruler over men," and made him, so to say, the hero of his "French Revolution" (if that marvellous work can be said to have had a hero)—Mirabeau was almost, if not entirely, a monstrosity at birth. Carlyle, in one of the finest of his Essays, that in which he reviews the eight volumes of *Mémoires biographiques, littéraires, et politiques de Mirabeau*, gives some hint of the abnormalities of this "heir of all the Riquettis" at his birth. "A magnificent, 'enormous' fellow, as the gossips had to admit, almost with terror; the head especially great; 'two grinders' in it already shot!—rough-hewn truly, yet with bulk, with limbs, vigour bidding fair to do honour to the line." S. G. Tallentyre, in his much more recent "Life of Mirabeau," gives further details of this momentous birth. "Then, in 1749," he writes, "there appeared with a twisted foot, a gigantic head with two teeth already cut, tongue-tied, monstrous and hideous, not merely the greatest of Mirabeaus but one of the greatest of the sons of France. The creature was so extraordinary that the Marquis had to be warned and prepared for his first introduction to him." Carlyle, with his genius for restoring past scenes, says: "The paternal Marquis, to whom they said, 'N'ayez pas peur, Don't be frightened,' gazed joyful, we can fancy, and not fearful, on this product of his; the stiff pedant features relaxing into a veritable smile." He whom Carlyle calls "the paternal Marquis" was Victor Riquetti, the representative of an old Florentine family which flourished about Dante's time in North Italy and later in Provence. Many notables had sprung from this line; it was a fine eugenic stock; they were "the well-born of the world," says Carlyle, and yet

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here was a most abnormal baby, a most dysgenic result. Such babies are born now and again, and are labelled cases of multiple malformations in the new-born or are more specifically called fetal rickets; but how comes a Riquetti to be rickety? The writer of Victor's life in the *Biographie universelle* hints that this "Friend of Men" (*L'Ami des hommes*), as he was called, had by his debauchery several times compromised the health of his wife (Marie-Geneviève de Vassan). Antenatal pathology may well have been at work here, poisoning the blue blood of the Riquettis and de Vassans, and leading to this teratological phenomenon in the family annals. Carlyle must have been very far out when he imagined the Marquis Mirabeau looking down joyfully on this product of his; it may have been sorrowfully or shamefacedly; it could hardly have been joyfully, unless indeed he was able to read far into the future, and see that strange "sprawling oaf" with the destinies of France in his hand, the one man capable, had he lived, of chaining the titanic forces of that world-shaking event, the French Revolution. But he was not to live, but to die at the age of 42. Looking out through the window on that last morning of his full-filled but short life, he hailed the sun: "If that there be not God, he is at least his cousin-german," cried he. He was a prodigy at his birth, and he remained prodigious, gigantic, world-compelling, all the days of the years of his life.—Brit. Med. Jour.

THE SOONER A LONG BONE IS OPENED in acute osteomyelitis the less the destruction.—Amer. Jour. Surg.

THE DEATH OF MARY THE FIRST OF ENGLAND.—One of the most interesting clinical histories among the monarchs of England is that of Mary the First, familiarly known as "Bloody Mary" on account of the persecution of Protestants under her reign. Its interest centers chiefly in the fact that it is the only one of these histories which was primarily gynecological.

Mary Tudor, who was born at Greenwich Palace on February 18, 1516, was the only surviving child of Henry VIII and Catharine of Aragon, his first wife and legitimate queen. Like her younger half-brother, afterwards Edward VI, she was mentally precocious, and at the age of nine was proficient in music and in the Latin tongue. As a girl she suffered much from dysmenorrhea and scanty menstruation. She was several times betrothed to various different foreign princes, but did not marry until she was 38 years of age. She was proclaimed queen at Norwich on July 13, 1553, a week after the death of Edward VI; crowned at Westminster on October 1 of the same year, and married at Winchester on July 25, 1554, to Philip II of Spain.

In due season after this it was believed that she was pregnant, a supposition for which her habitual menstrual irregularity easily gave occasion. But the abdominal enlargement, which gave further verisimilitude to this pseudocyesis, proved in fact to be due to an ovarian cyst. The mortification and disappointment associated with this episode, combined with the physical discomfort of her disease to make the remainder of Mary's life miserable. The surgery of the time dared do nothing to relieve her. As the tumor grew she became progressively more cachectic. Finally, in September, 1558, she became infected with "the new burning ague," apparently a virulent influenza then epidemic in England, and of this, as a terminal ailment, she died on November 17, 1558. Her physician was Dr. Caesar à Dalmariis, a naturalized Italian.

Mary's life was one of bitter vexation and disappointment. It was she whose grief at the loss of Calais was so great that she declared his name would be found written on her heart. Like that of Edward VI, her death was one that probably might well have been prevented by modern medical science. Like him, too, she died too soon to give her name to the age of unsurpassed literary and political brilliance that was so soon to follow under her half-sister, Queen Elizabeth.—Boston Med. & Surg. Jour.

CRUMB AND CRUST.—Lay discussion not infrequently turns upon the relative merits of the crust and crumb of bread, but it has come to our attention that the matter is often referred to the family medical adviser, generally in the form of a question as to which of the two is more digestible. Analysis shows very little difference in regard to the constituents of each, but the crust, of course, contains much less moisture, and so is richer in solid constituents. The crumb contains on an average 43 per cent. of moisture, while the crust contains only 20 per cent. One important dietetic difference between crust and crumb is the fact that the former contains an increased amount of soluble carbohydrates owing to the action of intense heat which the crust receives compared with the crumb during baking. Moreover, the crust has a more pronounced "bread" flavor than the crumb, a flavor which is attractive and which stimulates the flow of digestive juices. That the digestion of crust in the mouth is much more likely to be complete than is the case with

the crumb everyone has generally found out for himself, as the plasticity of the crumb, and especially that of new bread, prevents to some extent the salivary attack. If new bread were as thoroughly masticated as dry stale bread is bound to be, there would be no reason why it should be less digestible, but it seldom receives the necessary treatment in the mouth.—Lancet.

DEPOPULATION IN FRANCE.—The report of Lannelongue, issued some months ago, on the question, serious to France, of depopulation, is not without interest to American sociologists. Lannelongue pointed out that the low birth rate, as indeed was well known, was the sole cause, as there was practically no emigration, French mortality was the lowest in Europe, and there was a notable immigration of fertile families. While there were 1,000,000 births in France in 1870, in 1909 there were but 770,000; the birth rate, in fact, was by far the lowest in the world. If a French wife was as fertile as her German sister there would be an annual gain of 500,000 in the French population. The disadvantages of depopulation were stated to be diminution in military power, and colonizing, in maritime power and foreign commerce, a lowering of the influence of the French language, a fall in labor and its products, a diminution in patriotism, morality and the feeling of solidarity, diminished agricultural output, and, concludes Lannelongue, a falling off in esthetics. As to the causes, the author cited scientific and sociological ignorance on the part of parents, celibacy and late marriage, the iron French laws of inheritance, individualism, feminism, too many government employees,

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taxes and the high cost of living, morals, literature and cheap politics (*cabotinage*). As remedies are proposed education in parenthood, the suppression of selfishness and avarice, removing the obstacles to fecundity, doing away with useless and verbose commissions, imitating the customs of fertile peoples, and generally in cultivating common sense and sanity. Efforts should be made to raise the birth rate among government employees, the most sterile class of all, and to help, by giving something more than kind words, all families of more than four children.—American Medicine.

IN CASE OF INTRACTABLE "DYSPEPSIA" persistent tenderness in the right iliac region is suggestive of chronic appendicitis as the cause.—Amer. Jour. Surg.

HYDROQUININE HYDROCHLORIDE differs from quinine in that it contains two hydrogen atoms more than the latter. Its composition is as follows: $C_{20}H_{26}N_2O_2 \cdot HCl + 2 H_2O$. Hydroquinine occurs in small quantities in the cinchona barks and is very similar to quinine as regards its properties so that it can only with great difficulty be separated from quinine. We have now succeeded in preparing this alkaloid synthetically from quinine and there is nothing now to impede its therapeutical employment.

Hydroquinine hydrochloride forms white crystals, very easily soluble in water and of very bitter taste; the crystals are easily soluble also in alcohol, but insoluble in ether. It is chiefly distinguished from quinine by its neutrality to a potassium permanganate solution, which is immediately reduced by quinine. Therapeutically it is of the utmost importance that hydroquinine hydrochloride is so extremely soluble in water. Quinine hydrochloride dissolves only in 34 parts of water of ordinary temperature, while hydroquinine hydrochloride is soluble in 0.5 parts of water. Hence it may be employed with great advantage for subcutaneous injections.

The toxicity of this alkaloid has been investigated by Prof. Hunt at the Frankfort Institute for Experimental Therapy (director, Dr. Paul Ehrlich). Prof. Hunt found that the lethal dose for mice is about 0.37 milligrams per gram body-weight in the case of quinine hydrochloride, and 0.33 milligrams per gram bodyweight in the case of hydroquinine; thus the toxicity of both substances is practically the same. Similar results were found also in the experiments on infusoria. These findings have since been confirmed by Prof. Morgenroth and Halberstaedter, who also proved the toxicity of hydroquinine administered to mice to be no greater than that of quinine; intravenous and subcutaneous injections also showed the same degree of toxicity in both substances. Morgenroth and Halberstaedter, however, made the important discovery that the addition of hydrogen to quinine, which occurs in the vinyl side series of combinations, causes certain modifications of action, inasmuch as the trypanocidal effect of quinine is considerably augmented.

This difference between quinine and hydroquinine in the treatment of trypanosome infection is very striking. Of 11 animals treated with quinine, 9 succumbed to the infection, while there was only one death among the same number of animals treated with hydroquinine.

These and analogous experiments show that, all things being equal, hydroquinine is immensely superior to quinine in the same doses and that it

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provides an almost certain prophylactic protection against the infection. But a decided superiority of hydroquinine over quinine is manifest also as regards curative treatment. In cases where numerous trypanosomes are present in the blood of experimental animals, the injection of a quinine dosis, as large as can possibly be borne, does not cause a disappearance of trypanosomes and repeated injections only very rarely produce temporary disappearance for a few days. Corresponding doses of hydroquinine hydrochloride, on the other hand, injected one to three times on consecutive days, result in almost all cases in the complete disappearance of trypanosomes from the circulatory system. The superiority of hydroquinine hydrochloride over quinine is thus equally striking in a curative direction.

Present results suggest the possibility of favorable therapeutic effects in human trypanosome infection through suitable dosage, perhaps combination with other trypanocidal agents; and they also open the question whether the results of the trypanosomes experiments cannot be applied to malaria, whose causators have fairly close relations to the trypanosomes. It is not impossible that hydroquinine, in doses corresponding to those of quinine, may produce malaria cures with a better chance of non-recurrence than is afforded by quinine. Of especial interest are the experiments with hydroquinine in malaria cases which are more or less refractory to quinine. Investigations in this direction are now proceeding, and from private communications it is evident that hydroquinine is proving a very useful remedy in malaria.

Giemsas and Werner have also pronounced hydroquinine hydrochloride to be a very efficient antimalarial, superior to quinine in its specific action. Given internally, 9 grains hydroquinine hydrochloride *pro die* correspond in their effects to 12 or 15 grains quinine hydrochloride (administered in the form of urethane quinine). For a single intravenous injection, to effect a temporary disappearance of the sexless parasites from the circulatory system and to reduce the temperature, 15 grains quinine hydrochloride (urethane quinine) or 12 grains hydroquinine hydrochloride are sufficient.

Hydroquinine should be of especial importance in the treatment of malaria and other affections because it is extremely soluble in water and therefore applicable to injections in a perfectly neutral solution, the addition of urethane, antipyrine, etc., as practiced with quinine hydrochloride, being unnecessary; nor need we resort to the acid salts,

such as quinine bihydrochlor., or quinine bihydrochlor. carbamate, whose injections often cause indurations.

R. Lenzman assumes that the spasmodic attacks in whooping cough are caused by bacterial toxins, which stimulate the reflex arcs passing through the laryngeus. In order to mitigate this irritability he tried injections of hydroquinine, which gave admirable results. He prescribed a solution of 1 Gm. of hydroquinine hydrochloride in 10 Cc. of normal saline solution, of which adults were given a daily dose of 2.5 Cc. for four days, and children, according to their age, were given an intravenous injection of 0.05 to 0.2 Gm. ($\frac{3}{4}$ to 3 grn.). Or children may be given an intramuscular injection of 0.2 Gm. (grn. 3) if intravenous injection should present difficulties. From the fourth day onwards the injections are given on alternate days. The author states that by the tenth day the attacks are completely checked.

Experiments carried out by Morgenroth and Ginsberg on rabbits' eyes showed that the aqueous solution of hydroquinine hydrochloride and the oily solution of hydroquinine give rise to powerful and lasting anesthesia. Further experiments must show whether the preparation will prove a useful anesthetic in ophthalmic practice.

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A NEW SIGN IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.—The importance of the early diagnosis of pulmonary tuberculosis cannot be overemphasized. In this the physical examination of the patient takes precedence over laboratory methods, particularly during the incipient stage of the disease, the time during which treatment offers the greatest hope of success. For this reason, whatever new clinical sign of

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symptoms attendant upon such inflammations. In addition to the above definite therapeutic powers, it should be remembered that GONOSAN'S value is further emphasized by its comparative freedom from those qualities—gastric and renal irritation—usually found in other balsamics.

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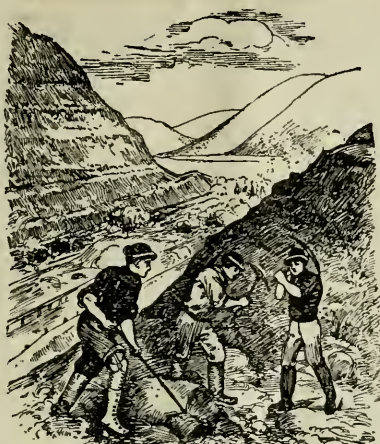
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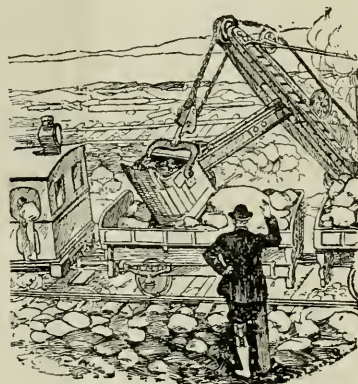
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STEAM SHOVEL AT WORK

early tuberculous involvement of the lungs is added to the few signs already available is to be welcomed and carefully investigated. For this new sign we are indebted to Professor Antonio Lombardi of Naples, who reports his observations in the "Giornale Internazionale delle Scienze Mediche," August 31, 1913. The sign consists in the appearance of venous varicosities in the neighborhood of the spinous processes of the seventh cervical and of the first three thoracic vertebrae. These varicosities, which vary in length from one centimeter to one centimeter and a half, are of bluish color, are at times quite evident, and at other times are made visible by a gentle transverse stroking of the skin. They are observed most frequently in the neighborhood of the seventh cervical vertebra. They may be most minute; there may be only two or three of them, or there may be a large number of them. Occasionally in the region of the venous enlargements there may be a slight edema, and the patient may complain of tenderness in this region when it is pressed upon. This sign is especially to be observed in cases of pulmonary tuberculosis in which there is an infiltration of the apices, as revealed by supraclavicular and suprascapular dullness, diminished respiratory murmur, etc. It is present in from 88 to 90 per cent. of the cases, and has been denominated by Lombardi the "varicose zone of warning" (*zona varicosa d'allarme*).

Without going into the anatomical details which this observer points out in showing how an infiltration of the pulmonary apices leads to a venous engagement of the radicles in the above zone, it may suffice to state that these varicosities are of analogous origin to the enlarged veins

that are irregularly distributed over the chest in cases of hypertrophy or congestion of the peribronchial glands, in asthma, in bronchitis, and in pulmonary emphysema, in which the left superior intercostal vein or its tributaries are pressed upon. In all of these cases, however, the venous enlargements are found chiefly in the lower part of the thorax, both in front and behind. Lombardi's sign appears most frequently in cases of disease of the right apex. Of particular value in diagnosis is the presence of this sign in children from five to ten years of age and in adolescents.—Med. Record.

AS A QUICK METHOD OF CAUTERIZING THE APPENDIX STUMP, amputate the organ with knife or scissors dipped in pure phenol.—Amer. Jour. Surg.

ALBUMIN MILK.—The following method of preparing albumin milk, used at St. Ann's Infant Asylum, St. Louis, is recommended by J. M. Brady as time and labor saving. "1. Bring a quart of sweet whole milk to the boiling point; raw milk is not used because its curd is much tougher. 2. Cool to 100° F. 3. Add one tablespoon essence of pepsin and allow to curdle. 4. Pour off the whey and suspend curds in muslin bag two hours. 5. Stand bag containing curd in 8 ounces boiled cool water. 6. Remove the bag from the water, allow as much water to drip as will and place curds in sieve. 7. Add pint of fat-free buttermilk to sieve containing curds; it will be found that the curds will pass through in two to three minutes, which must be repeated three or four times. 8. Turn the bag inside out and return to the 8 ounces of water so as to

obtain all the curd. 9. Pour in the sieve the 8 ounces of water which was used to soak the curds. 10. Add enough water so the whole measures a quart. 11. Add the percentage of maltose-dextrin desired and put on ice. We are able to prepare 10 quarts of this food after the curds have drained and soaked in less than 10 minutes with the minimum separation of the fat."—*Jour. A. M. A.*, Nov. 15, 1913.

MELTED VASELINE is an important adjunct in the transfusion paraphernalia. Frequently applied at the site of junction, it minimizes any tendency to clot formation.—*Amer. Jour. Surg.*

A SAFE SEDATIVE AND ANODYNE.—This is the language in which those who know its properties describe Pasadyne (Daniel). It is to be understood that Pasadyne (Daniel) is a distinctive name given to a concentrated tincture of *passiflora incarnata* which had been employed for a generation.

The specific value of Pasadyne lies in its marked sedative and analgesic powers and freedom from evil effects. This feature at once shows its superiority over opium and the coal-tar products. In probably the majority of instances by which opium or a coal-tar derivative is indicated Pasadyne (Daniel) would act satisfactorily as a substitute. The physician may rely upon it. A sample bottle may be had by addressing the laboratory of John B. Daniel, 34 Wall street, Atlanta, Ga.—(J. B. Daniel, Augusta, Ga.)

X-RAY PLATES, properly interpreted, are of great service in the diagnosis of mastoiditis, acute and chronic. Stereoscopy and comparison of the pictures of the two sides enhance the value of the radiographic examination.—*Amer. Jour. Surg.*

AN ALTERNATIVE OF LONG SERVICE.—It is mainly in chronic skin and glandular diseases that alternatives have found their most distinct field of usefulness, for these are conditions aggravated and continued by impaired nutrition and elimination. In the correction of which alternatives show what potent remedial forces they are. Among the alternatives Iodia (Battle) has long enjoyed professional favor and in this will be found a striking demonstration of its value, for no class of drugs are put to a more rigid test than alternatives, so its long continued use by physicians is the best evidence that it meets the demands made

upon it. Iodia (Battle) will show its power in chronic skin diseases, glandular involvements and in other states indicating the corrective influence of an alternative agent. A distinct advantage offered by Iodia is that it may be continued over long periods without causing distress.—(Battle & Co., St. Louis, Mo.)

THE OCCASIONAL OCCURRENCE of subperiosteal fracture of the patella should be borne in mind as a possible explanation of continued disability after trauma or muscle violence. It is only one of the conditions that radiography may elucidate which other means of examination of the knee fail to reveal.—*Amer. Jour. Surg.*

COLLAGOLUM IN SKIAGRAPHY AND URETERO-PYELOGRAPHY.—While many American and European radiologists agree that collargolum, which was first recommended by Voelcker and Von Lichtenberg in 1906 as the most advantageous injection medium into the bladder and renal pelvis, has not been equalled technically by any other material since suggested for this purpose, occasional reports of alleged injury from its use have recently appeared in the literature.

W. F. Braasch of the Mayo Clinic, St. Mary's Hospital, Rochester, Minn., who was the first to extensively apply Voelcker and Von Lichtenberg's technique in the United States and has introduced many valuable modifications and diagnostic possibilities of the same, states in an article on "Recent Progress in Uretero-Pyelography" (*Journal Mich. State Med. Soc.*, April, 1913) that this technique has been employed in the Mayo Clinic in more than one thousand cases without fatality or permanent injury. The occasionally observed colic following examination by this method was not more frequent nor more severe than after ureteral catheterization alone.

It has been his experience that severe reaction following pyelography is usually the result of errors in technique or lack of care in the selection of the cases. In regard to the latter, careful perusal of Dr. Braasch's article is strongly recommended to all those interested, a short abstract being inadequate to do justice to this part of his report.

The following technical precautions are urged by him:

The collargolum crystals should be carefully ground in a mortar when put into solution (10 per cent.) and the latter filtered; otherwise undissolved crystals may be deposited on the walls

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AN IMPORTANT REPORT

By Professor W. A. PUCKNER
Secretary of the Council on Pharmacy and Chemistry
American Medical Association

In the Journal of the American Medical Association, September 13, 1913, Professor Puckner reports the result of the investigation of products of a number of pharmaceutical houses. In this report are embodied the results obtained by Dr. R. A. Hatcher, of Cornell University Medical School, who made a special examination of the various digitalis products of these pharmaceutical houses, demonstrating the following

FACTS

- First.*—That commercial digitalis preparations vary most widely in activity.
Second.—That Mulford Digitalis, the most active, is four times as active as the weakest.
Third.—That the digitalis prepared by other firms, assumed to be physiologically assayed, showed a variation of more than 100 per cent. in strength.
Fourth.—That the digitalis next in strength to the Mulford preparation, was only 65 per cent., and the weakest, 29 per cent. in activity.

CONCLUSIONS

While there is no official standard of activity for digitalis, Dr. Hatcher adopted the Mulford Fluidextract Digitalis as the standard of comparison, because its activity was that of a good digitalis. The report proves the activity and reliability of the Mulford Digitalis, and coincides with the former report made by the United States Bureau of Hygiene, tabulated in Bulletin No. 48, December, 1908, by Edmunds and Hale, relating to the Mulford Fat-free Tincture of Digitalis—*Digital*.

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of the pelvis and ureter and act as an irritant. The solution should be carefully warmed before injecting, not boiled, since it coagulates with boiling. The solution should be injected by the gravity method, watching the patient for the slightest evidence of pain. From 2 to 8 Cc. will usually suffice unless symptoms of obstruction have been previously noted. A large ureteral catheter should be used so that the injected solution may drain away easily. The apparatus for the x-ray and the injection should be so arranged that there will be no delay after the catheter is inserted.

The unequalled diagnostic value of skiagraphy and uretero-pyelography by means of collargolum and the innocuousness of the method if carried out correctly is also vouched for by Dr. George H. Stover, Professor of Roentgenology, University of Colorado (Annals of Surgery, June, 1913); Dr. G. Strassmann of the Surgical Polyclinic of Prof. F. Voelcker, Heidelberg, Germany; Prof. Th. Nogier and Dr. J. Reynard of the University of Lyons (Lyon Medical, 1912, No. 51); Dr. William I. Bruce, Radiologist to the Charing Cross and the Children's Hospital, London (British Medical Journal, Oct. 14, 1911); Dr. E. M. Stanton, Schenectady, N. Y. (Albany Medical Annals, July, 1912); Dr. William T. Belfield, Professor of Genito-Urinary Surgery, Rush Medical College (Jour. A. M. A., March 15, 1912); Dr. Lewis G. Cole, Clinical Professor of Radiology, New York Post-Graduate Hospital (The Post-Graduate, Jan., 1911); Dr. N. Nemenow, Chief of Central Roentgen Laboratory, St. Petersburg Medical High School for Women (Fortschr. auf den Geb. d. Roentgenstrahlen, Vol. 18, No. 3),

and by a constantly growing number of other reports from nearly every civilized country.—(Schering & Glatz, N. Y.)

THE RANGE OF PASADYNE'S USEFULNESS.—To those who have long employed Pasadyne (Daniel) and are well acquainted with its distinct value in medicine it will not be fresh information to be assured that Pasadyne (Daniel) has as wide a therapeutic range as any agent of similar character, and with the added advantage of freedom from untoward effects.

In writing of *Passiflora incarnata*—and, of course, it is scarcely necessary to mention that Pasadyne is merely the distinctive name for Daniel's Concentrated Tincture of *Passiflora incarnata*—Potter says that "It has been administered with satisfactory results in neuralgia, chorea, spasmodic asthma, pertussis, hysteria, dysmenorrhoea, insomnia, infantile and puerperal convulsions and the opium habit."

(A sample bottle may be obtained by addressing the Laboratory of John B. Daniel, Atlanta, Ga.)

MISTAKES IN DIAGNOSIS are sometimes made by accepting a negative Wassermann reaction as exclusive of syphilitic infection.—Amer. Jour. Surg.

IN THE PALM, foreign bodies, by reason of the direction of the thrust, often point towards the dorsum and, in a general way, towards the center of the wrist, and such movements as they undergo by muscular contractions carry them further in those directions.—Amer. Jour. Surg.

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LANDMARKS IN THE DEVELOPMENT OF THE SCIENCE OF MEDICINE IN AMERICA

By R. I. Geare, of Washington, D. C.

THE pioneer doctor in the American colonies was Dr. Thomas Wotton, surgeon-general of the "London Company," who came over with the colonists that settled in Jamestown, Va., in 1607. There is very little known about his work, however, and he probably returned to England soon afterwards. The first English doctor recorded as rendering medical aid to Englishmen in the American colonies is Dr. Walter Russell, who came out with the "First Supply" in 1608. He accompanied Capt. John Smith in his exploration of Chesapeake Bay and the Potomac River in June, 1608, and it is worthy of note that Captain Smith was his first patient. Captain Smith had speared a sting-ray with his sword and in removing the fish was wounded in the wrist by its spine. The quaint record states that "the torment was instantly so extreme that in foure houres had so swollen his hand, arme and shoulder, we all with much sorrow concluded his funeral, and prepared his grave in an Island by, as himself directed; yet it pleased God by a precious Oyle Doctor Russell at the first applied to it when he sounded it with the probe, his tormenting pain was so well assuaged that he eate of the fish to his supper." Dr. Anthony Bagnall, who also came to Jamestown in 1608, treated the same wound later and also rendered surgical aid to an Indian who had been shot in the knee during a fight with Captain Smith's party.

The first law regulating medical practice

in the colonies was an "Act of the Grand Assembly of Virginia," dated March, 1645-6, which was an amendment of an "Act of Assembly" held October 21, 1639. The Act reads as follows:

"Chirurgeon, Midwives, Physitians. Forasmuch as the Law of God allowes no man to impair the Life, or Limb of any person, but in a judicial way: It is therefore Ordered, That no person or persons whatsoever, employed at any time about the bodyes of men, women or children, for preservation of life or health; as Chirurgeons, Midwives, Physitians or others, presume to exercise or put forth any act contrary to the approved Rules of Art, in each Mystery and occupation, nor exercise any force, violence, or cruelty upon or toward the body of any, whether young or old (no not in the most difficult and desperate cases) without the advice and consent of such as are skillful in the same Art (if such may be had) or at least of some of the wisest and gravest then present, and consent of the patient or patients if they be *mentes compotes*, much less contrary to such advice and consent; upon such severe punishment as the nature of the fact may deserve, which Law nevertheless, is not intended to discourage any from all lawfull use of their skill, but rather to incourage them and direct them in the right use thereof, and inhibit and restraine the presumptuous arrogance of such as through presidence of their own skill, or any other sinister respects, dare boldly attempt to exercise any violence upon or towards the bodyes of young or old, one or other, to the prej-

udice or hazard of the life or limbe of man, woman or child."

The first physician to the Plymouth colony was Dr. Samuel Fuller, who came over in the "Mayflower" in 1620. He was a deacon in the church, and is said to have met with great success in his practice. A slight idea of the medical methods in vogue at that time can be had from a letter which Dr. Fuller wrote to Governor Bradford on June 28, 1630, wherein he said: "I have been to Matapan" (now Dorchester) "and let some twenty of the people blood."

The following law regulating medical practice is taken from "The General Laws and Liberties of the Massachusetts Colony, 1649." It also appeared in substantially the same words in "The Duke of York's Laws" for the Colony of New York, which was promulgated in 1665:

"Whereas by the 9th Act of Assembly held the 21st of October, 1639, consideration had and, taken of the immoderate and excessive rates and prices exacted by practitioners of physick and chirurgery and the complaints made to the then Assembly of the bad consequences thereof, It so happening that the hearts of divers masters were hardened rather to suffer their servants to perish for want of fitt meanes and applications than by seeking releife to fall into the hands of griping and avaricious men, It be apprehended by such masters who were swayed by politick respects than by Xpian [Christian] duty or charity. That it was the more gainful and saving way to stand the hazard of their servants than to entertain the certain charge of a physitian or chirurgeon whose demands for the most parte exceede the purchase of the patient. It was therefore enacted for the better redress of the like abuses thereafter until some fitter course should be advised on within the Colony. That it should be lawfull and free for any person or persons in such cases where they should conceive the acco't of the physitian or chirurgeon either unreasonable either for his pains or for his druggs or medicines, to arrest the said physitian or chirurgeon either to the quarter court where they inhabit, where the said physitian should declare upon oath the true value, worth and quantity of his druggs and medicines administered to or for the use of the plt. [plaintiff] whereupon the court where the matter was tried was to adjudge and allow to the said physi-

tian or chirurgeon such satisfaction and reward as they in their discretions should think fit. And it was further ordered that when it should be sufficiently proved in any of said courts that a physitian or chirurgeon had neglected his patient, or that he had refused, being thereunto required, his helpe and assistance to any person or persons in sickness or extremity, that the said physitian or chirurgeon should be censured by the said court for such neglect or refusal. Which said act and every clause therein mentioned and repeated this present Grand Assembly to all intents and purposes doth revive, ratifie, allow and confirm with this only exception that the plts. or patients, shall have their remedie at the County Courts respectfully, unless in case of appeale."

The first medical publication issued in America was published in 1677 under the following title: "A Brief Rule to guide the Common People of New England how to order themselves and theirs in the Small Pocks or Measles," by Thomas Thacher, eminent divine, learned physician; first minister of the Old South Church, Boston.

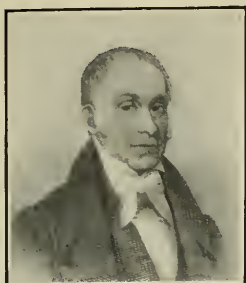
The following curious "Receipts to cure various Disorders" are extracted from a manuscript sent by Dr. Edward Stafford of London, to Governor Winthrop, of Massachusetts, in 1643:

"For the yellow jaundise or jaunders—Boyle a quart of sweet milke, dissolve therein as much bay-salt or fine Saltpeter, as shall make it brackish in taste; and putting saffron in a fine linen clout, rubb it into ye Milke until ye milke be very yellow; and give it to ye patient to drinke."

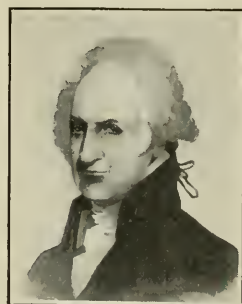
"For pains in ye breast or limmes, weare a wilde cat's skin on the place grieved."

"For a broken bone, or a joynt dislocated, to knit them: Take ye bark of elme, or witch-hazle; cutt away the outward part, and cutt ye inward redd barke small, and boyle it in water till it be thick that it will rope; pound well, and lay of it hott, barke and all upon ye bone or joynt, and tye it on; or with the Mussilage of it, and bole Armoniak make a playster and lay it on."

"For the King's evill. Take 2 Toades and let them fast 2 or 3 dayes that they may spewe out their Earth, then boyle them in a pint of oyle in a newe pipkin covered so long, till they be brought to



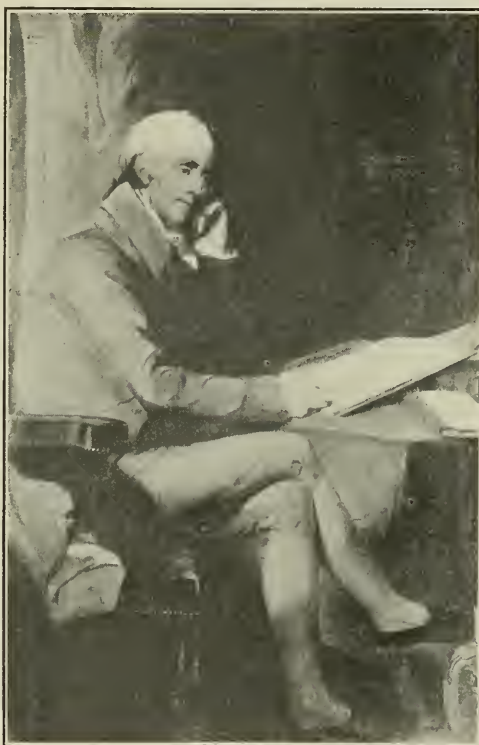
DR. E. M. DOWELL



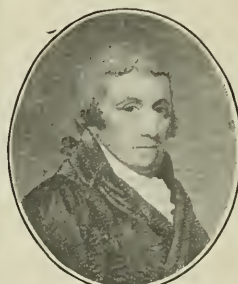
DR. JAMES LLOYD



DR. WILLIAM C. MORTON



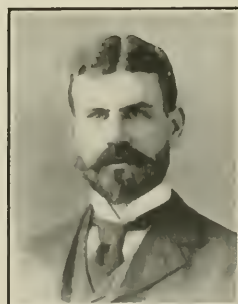
DR. BENJAMIN RUSH



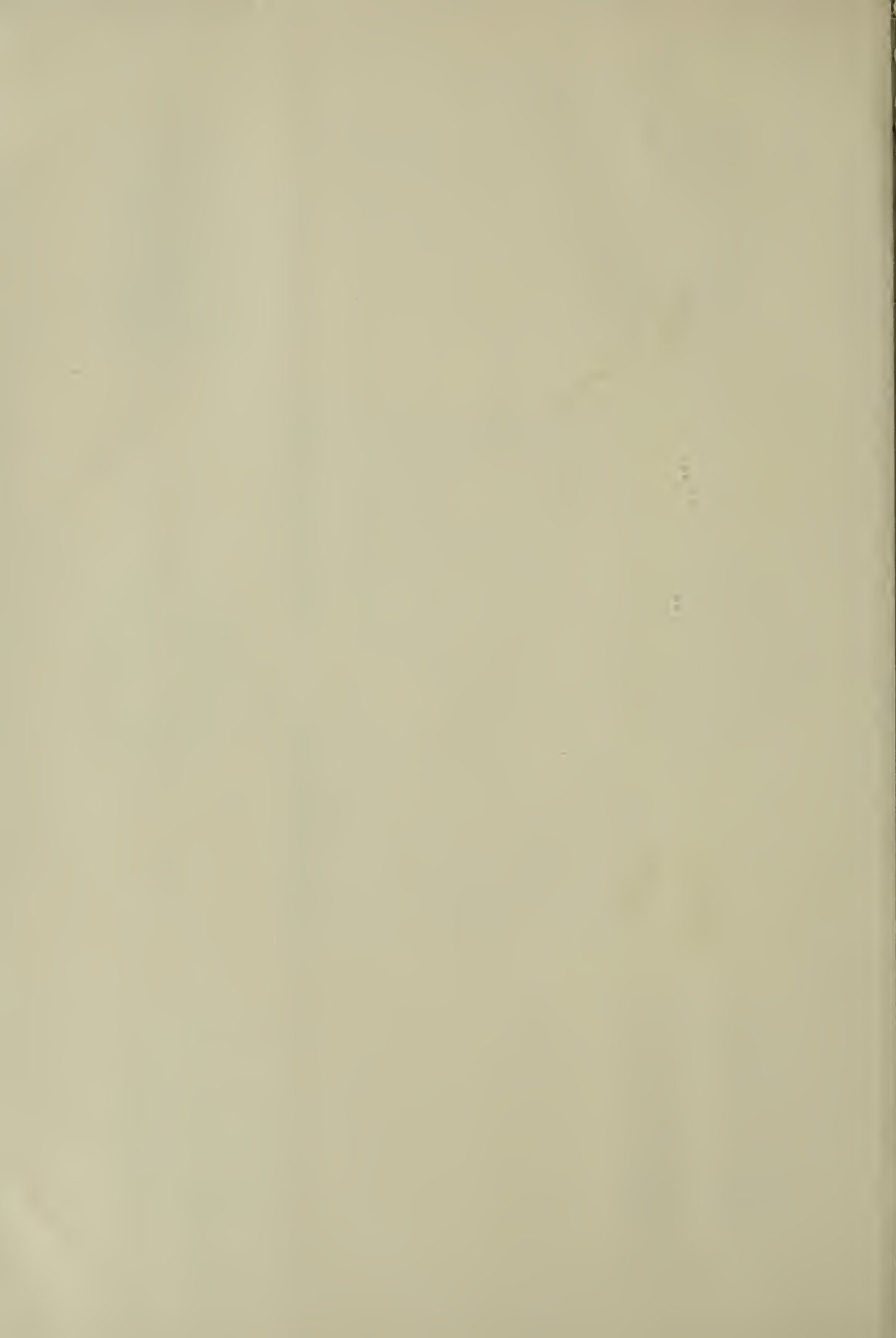
DR. BENJAMIN WATERHOUSE



DR. WALTER REED



DR. JESSE W. LAZEAR



a black Coale broken in pieces—presse out the Oyle from the said Toades, reserve a 4th part, to the other three parts add halfe a pound of yellow wax, shaved small—let the wax melt on the Oyle in weh, dippe the linnen cloathes, that they may be well covered cere-cloathes—with the 4th part of the Oyle left annoynt all the places infected, and then strew of my black powder of Toades (mentioned before for an Antidote agaynst the Plague) upon the sores or swellings, and then put on of ye Cere-cloth. By this course there is no doubt of the Cure by God's assistance."

The principal attendants on the sick in the early days of the Dutch colony in New Amsterdam (now New York) were women nurses and midwives called "Zieckentroosters," or comforters of the sick. They were regularly appointed and paid by the colony in accordance with the regulation of the Dutch West India Company. Three of them are especially mentioned in the Annals, viz., Lysbert Dircksen, Yryntje Janss, and Hellegond Joris. It is interesting to note that Annetje Janss, daughter of Yryntje Janss, became the owner of the property on which Trinity Church now stands.

It was at the instigation of Rev. Cotton Mather (1663-1728) that the first inoculation against the terrible ravages of smallpox was performed in America. At the risk of his life and in the face of violent popular opposition he advocated and vindicated this radical action. It is said that he was led to the advocacy of the measure after reading a paper by Dr. Emmanuel Timonius, then residing in Constantinople, on "Turkish Inoculation," which paper was published in the Philosophical Transactions of London in 1717.

The following history of the Inoculation is extracted from one of Dr. Timonius' letters:

"The writer of this Discourse observes that the Circassians, Georgians, and other Asiatics, have introduced this practice of procuring the Small-Pox by a sort of Inoculation for about the space of forty years, among the Tyrks and others at Constantinople.

"This method of the operation is thus—Choice being made of a proper contagion, the Matter of the Pustules is to be communicated to the person proposed to take the infection. For this purpose they make choice of some boy, or young lad, of a sound healthy tem-

perament, that is seized with the common small-pox.

"On the 12th or 13th day from the beginning of his sickness, they with needle prick the tubercles (chiefly those on the shins and hams) and press out the matter coming from them into some convenient vessel of glass. * * * The patient being in a warm chamber, the Operator is to make several little wounds with a needle in one, two or more places of the skin, till some drops of blood follow, and immediately drop out some drops of the matter in the glass, and mix it well with the Blood issuing out; one drop of Matter is sufficient for each place pricked."

It is recorded that Dr. Zabdiel Boylston, Mass. (1684-1766), was the first in America to perform the operation of inoculation.

One of the most noted pioneers in the practice of obstetrics in this country was Dr. James Lloyd, Mass. (1728-1810). He was born on Long Island, studied medicine with a Doctor Clarke in Boston and later attended lectures in London for two years. Dr. Lloyd is believed to have been the first to perform lithotomy in Boston, if not in New England, and was the first to substitute ligatures for the actual cautery, for control of hemorrhage in surgical operations. It is written of him that he "commanded a more respectable circle of professional business than any other physician of his day."

The first series of practical demonstrations of anatomy was given to a number of physicians by Dr. Thomas Cadwalader of Pennsylvania (1707-1779) in the year 1750. In 1740 he wrote one of the first publications on medical subjects, known as the "Iliac Passion" (Intestinal obstruction). He was first vice-president of the American Philosophical Society (1769), director of military hospitals in the war of the Revolution, one of the founders of Pennsylvania Hospital, and one of the trustees of the Medical College of Philadelphia (1765), of which more will be stated in considering the work of Dr. John Morgan, William Shippen and others.

One of the most prominent American physicians of the eighteenth century was Dr. John Lining, a native of Scotland, who settled in South Carolina (1708-1760) and who wrote the first American account of yellow fever. He advanced and vigorously supported the theory of immunity after one attack of yellow fever. He also made an elaborate series of experiments on himself

on the process of metabolism, which were published in the Transactions of the Royal Society in 1743. Further remarks on yellow fever investigations and control will be made later on when we come to consider the records of the twentieth century.

The Pennsylvania Hospital, already mentioned, was the first general hospital established in the colonies. It originated in the efforts of Dr. Thomas Bond (Penna., 1712-1773), and the enterprise was promoted by Benjamin Franklin. It was actually established through the generosity of the people of Philadelphia and the House of Representatives of the Province. It was chartered in May, 1751, and was first occupied by patients on December 17, 1756. Franklin wrote the inscription for the cornerstone, which reads as follows:

In the year of Christ
MDCCLV

George the second happily reigning
(For he sought the happiness of his people)
Philadelphia flourishing
(For its inhabitants were publick spirited)
This building

By the bounty of the Government,
and of many private persons,
was piously founded
For the relief of the sick and miserable;
May the God of Mercies
Bless the undertaking.

Perhaps the most conspicuous figure in the early days of American medical history was Dr. Benjamin Rush of Massachusetts (1745-1813). According to one authority he "established more principles, and added more facts to the service of medicine than all who had preceded him." He was born near Philadelphia, was a graduate of Princeton and a pupil of Dr. Redman. He obtained a medical degree from Edinburgh in 1768, and began the practice of medicine in Philadelphia in 1769. He was a member of the Continental Congress, a signer of the Declaration of Independence, and was Surgeon-general of the army for the Middle Department in 1776.

The prime mover in the establishment of the Medical School of the College of Philadelphia—the first on this continent—was Dr. John Morgan (Penna., 1736-1787), who, it is stated, was the first to restrict himself to the practice of medicine as distinct from surgery and pharmacy. His efforts were supplemented by the co-operation of Dr. Wm. Shippen. Dr. Morgan was made professor of theory and practice of physic; Dr. Shippen, professor of anatomy and surgery; Dr. Adam Kuhn, professor of botany and materia medica, and

Dr. Benjamin Rush, professor of chemistry. In 1791 the school was merged with the Medical Department of the University of Pennsylvania, under the name of the latter.

Among the most active of the founders of King's College Medical School, New York, were Dr. Samuel Bard, who held the first position there as professor of theory and practice of physic, and Dr. Peter Middleton, who was its first professor of physiology and pathology. The first professor of surgery in this school was Dr. John Jones, and these three were reckoned the most eminent medical men of their time in New York. Drs. Bard and Middleton are recorded as the first in America to inject the blood vessels and dissect the human body.

The second general hospital to be founded in the colonies of North America was the old New York Hospital, which was organized through the influence of Drs. Bard, Middleton and Jones, above mentioned, and was chartered in 1771.

It is a matter of interest to note that the following five doctors of medicine were among the signers of the Declaration of Independence. These were:

Dr. Josiah Bartlett (N. H., 1729-1795), who commenced practice at Kingston, N. H., in 1750, and became celebrated for his success in the treatment of "throat distemper" by tonic and supporting measures during the epidemic of 1754;

Dr. Matthew Thornton (N. H., 1714-1803), a native of Scotland, who began practice in Londonderry, N. H., where he became "conspicuous for professional skill;"

Dr. Oliver Wolcott (Conn., 1726-1797), who, while a student of medicine with his brother, did not actually engage in practice;

Dr. Lyman Hall (Georgia, 1731-1790), who was a successful practitioner of medicine in Sudbury, Georgia, and was one of the foremost citizens of his State in securing the co-operation of Georgia with the other colonies;

Dr. Benjamin Rush, to whom allusion has already been made.

Dr. Benjamin Waterhouse (Mass., 1754-1846), one of the founders of the Medical School of Harvard University, and its first professor of theory and practice of medicine, was also the first to introduce vaccination into America, after the method of Dr. Jenner. He published in the "Columbian Sentinel," March 12, 1799, an account of the "new inoculation" under the title "Something Curious in the Medical Line." In June, 1800, he successfully vaccinated

his five-year-old son, who two months later was inoculated with the virus of smallpox without effect.

The first medical periodical published in America was "The Medical Repository," the projector and founder of which, in conjunction with Dr. Samuel L. Mitchell and Dr. Edward Miller, was Dr. Elihu Hubbard Smith (Conn., 1771-1798).

The array of prominent American physicians in the nineteenth century is so great as to make it impossible in this place to do more than mention a few of them. One of the most famous of them was Dr. Nathan Smith (1762-1828). Born in Rehoboth, Mass., he removed in early life to Vermont, studied medicine with Dr. Goodhue, graduated in medicine at Harvard in 1790, established the Medical School of Dartmouth College in 1798 and was the first professor of theory and practice in Yale Medical School. In 1821 he performed ovariectomy, not knowing that it had ever been previously attempted.

Dr. James Jackson, one of the founders of the Massachusetts General Hospital, shared with Dr. Waterhouse the honors of introducing vaccination to the notice of American physicians. It was he who wrote that remarkable book entitled "Letters to a young physician just entering a practice," which was for many years the *vade mecum* of every New England practitioner.

The address of Dr. James Bigelow (Mass., 1787-1879) on "Self-limited diseases" is said to have had more influence on medical practice than any similar work ever published in this country. He was professor of materia medica at Harvard and editor of the first edition of the U. S. Pharmacopœia. He also published an elaborately illustrated series of volumes entitled "American Medical Botany." Antedating Dr. Bigelow by two years, Dr. William Beaumont, U. S. Army, deserves special mention as "the pioneer physiologist of this country, the first to make an important and enduring contribution to this science." One of his principal published papers was entitled "Experiments and Observations on the gastric juices and the physiology of digestion." This paper was based on his experiments in the case of Alexis St. Martin, who was accidentally wounded by the discharge of a shotgun, carrying away a large portion of his left side and making a direct opening into his stomach. He survived the wound, but was left with a permanent fistula of the stomach. Through this opening Dr. Beaumont was able to take samples of the stomach contents for inves-

tigation at any period of the process of digestion.

The first physician in America to tie the femoral artery for aneurism was Dr. David Hosack (N. Y., 1769-1835). He was the friend and family physician of Alexander Hamilton and attended him on the field in his fatal duel with Aaron Burr.

The distinction of being the first to tie the innominate artery goes to Dr. Valentine Mott (N. Y., 1785-1865), and it was said of him that no man living or dead had ever tied so many arteries. His operation of the innominate artery made him famous on both sides of the Atlantic.

An important incident in the evolution of the practice of medicine in America was the publication of the first edition of the United States Pharmacopœia, which occurred in Boston, December 15, 1820. It was published under the direction of a committee appointed by a general convention of delegates from medical societies and schools, which met in Washington, D. C., January 1, 1820. Dr. Lyman Spaulding (N. Y., 1775-1821) was prominently associated with the formation of the national pharmacopœia, and he was one of the committee on publication of the first edition, issued in 1820.

One of the most noted lithotomists of that day was Dr. Philip Syng Physick (1768-1837), known as the "father of American surgery." A native of Philadelphia and graduate of the University of Pennsylvania at seventeen, he developed into a "brilliant operator, an ingenious surgical mechanic, an instructive teacher and a noted lithotomist." He performed lithotomy on Chief Justice Marshall, removing more than 1,000 small calculi from his bladder.

The first surgeon to perform the operation of ovariectomy for the removal of a tumor was Dr. Ephraim McDowell (Ky., 1771-1830). Of his first seven cases six were successful. This, it must be remembered, was thirty years before the days of ether anesthesia, and nearly sixty years before the dawn of antiseptic surgery.

Among the many prominent medical writers of the time may be mentioned Dr. Daniel Drake (Ky., 1785-1852), who in 1850 published his great work on "Diseases of the Interior Valley of North America;" Dr. Robley Dunglison (Pa., 1798-1869), who was the author of a medical dictionary which was for many years regarded as the standard authority in the country. He also wrote on children's diseases, etc., and was the author of "System of Physiology," "Hygiene," "Therapeutics," "Practice" and "Materia Medica."

Eminent as surgeon, teacher and author was Dr. Samuel D. Gross (Pa., 1805-1884). His "System of Surgery" has been pronounced the greatest work on the subject ever written by one man.

The first man in America to maintain vigorously the thesis of "The Contagiousness of Puerperal Fever" was Dr. Oliver Wendell Holmes (Mass., 1809-1894). He was a brilliant anatomist, and widely known for his contributions to medical and general literature. In his paper on this form of fever he wrote: "The time has come when the existence of a private pesthouse in the sphere of a single physician should be looked upon not as a misfortune, but a crime."

To Dr. W. W. Gerhard (Pa., 1809-1872) belongs chiefly, if not wholly, the credit of having demonstrated the essential difference between typhus and typhoid fever.

The inception of the American Medical Association was marked by a resolution introduced at a meeting of the New York State Medical Society, May, 1846, by Dr. Nathan S. Davis, of Illinois, to the effect that "N. Y. State Medical Society recommend a national convention of delegates from medical societies and colleges in the whole Union for the purpose of elevating the standard of medical education in the United States."

A new era in cranial surgery was ushered in by Dr. Benjamin W. Dudley (Ky., 1785-1870) by his operation of trephining for the cure of epilepsy. He also introduced a new operation for hydrocele by excision of the sac, and was famous for his success in the treatment of chronic ulcers of the leg by rest, elevation and elastic compression.

The first public operation under ether anesthesia was performed by Dr. John C. Warren (Mass., 1778-1856), and the announcement of its discovery was made to the world by Dr. Henry J. Bigelow (Mass., 1810-1890) in a paper read before the American Academy of Arts and Sciences on November 3, 1846, and published in the Boston Medical and Surgical Journal, November 18 of that year. Dr. Warren was also the first American surgeon to operate for strangulated hernia.

Anesthesia by inhalation of sulphuric ether for a surgical operation was first intentionally produced by Dr. Crawford W. Long (Georgia, 1815-1878), to whom the use of ether in surgery was suggested when called on to resuscitate a boy who had been etherized by some of his friends in a spirit of fun.

Dr. William T. G. Morton (Mass., 1819-1868) is recorded as the man who "first demonstrated to the world the art of surgical anesthesia, the happiest gift conferred upon mankind by medical science or art," and it was he who prevailed upon Dr. Warren, then said to be the most famous surgeon in New England, to permit a test of its effects upon a surgical patient in the Massachusetts General Hospital.

In connection with the anesthesia discovery mention should also be made of Dr. Charles T. Jackson (Mass., 1805-1873), who was a rival claimant to Dr. Morton as the discoverer of the effects of ether as an anesthetic, and Horace Wells (Conn., 1815-1848), also a claimant for the discovery of surgical anesthesia. He used nitrous oxide gas for extracting teeth without pain, but in a demonstration was subjected to much ridicule as he failed to produce insensibility. His disappointment led him to take his life.

The opening of the twentieth century was conspicuously marked in medical annals by the appointment of a commission to conduct researches into the etiology, propagation and prevention of yellow fever. The president of the commission was Major Walter Reed, Surgeon, U. S. Army, the other members being Dr. James Carroll, Dr. James W. Lazear and Dr. Aristides Agramonte, all having the rank of Acting Assistant Surgeon in the Army. By a series of brilliantly executed experiments the commission was enabled to arrive at the following conclusions:

1. The mosquito, *Stegomyia calopus* Meigen (*S. fasciata* Fabricius), serves as the intermediate host for the parasite of yellow fever.
2. Yellow fever is transmitted to the non-immune individual by means of the bite of a mosquito that has previously fed on the blood of those sick of the disease.
3. An interval of about 12 to 18 days after contamination is necessary before the mosquito is capable of conveying the disease.
4. Yellow fever can be produced by the subcutaneous injection of blood taken from a patient during the first and second days of the disease.
5. Yellow fever is not conveyed by fomites, and hence disinfection of articles of clothing, bedding, or merchandise is unnecessary.
6. A house may be said to be infected with yellow fever only when there are present within its walls con-

taminated mosquitoes capable of conveying the parasites of this disease.

7. The spread of yellow fever can be most effectually controlled by destruction of mosquitoes and protection of the sick of this disease against the bites of these insects.

The first person to suggest that insects play a part as carriers of yellow fever was Dr. Josiah C. Nott, of Alabama, whose paper entitled "On the Cause of Yellow Fever," was published in the "New Orleans Medical and Surgical Journal," 1848, vol. 4. "It is probable," he remarked, "that yellow fever is carried by an insect or animalcule bred on the ground, and in what manner it makes its impression is but surmise; but unless the animalcule is, like that of psora, bred in the system, we could no more expect it to be contagious than the bite of a serpent."

The definite theory of transmission of yellow fever by the mosquito was first formulated by Dr. Carlos J. Finlay, of Cuba. In a paper read before the Royal Academy of Havana on August 11, 1881, entitled "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever," he states: "Three conditions will therefore be necessary in order that yellow fever may be propagated:

- "1. The existence of a yellow fever patient into whose capillaries the mosquito is able to drive its sting and to impregnate it with the virulent particles, at an appropriate stage of the disease.
- "2. That the life of the mosquito may be spared after its bite upon the patient until it has a chance of biting the person in whom the disease is to be reproduced.
- "3. The coincidence that some of the persons whom the same mosquito happens to bite thereafter will be susceptible of contracting the disease."

Dr. Finlay made many experiments to establish his theory, but failed to make them so conclusive as to command the acceptance of the profession, either in Cuba or elsewhere.

In connection with Dr. Lazear's work as a member of the U. S. Yellow Fever Commission, it is worthy of note that he allowed himself to be bitten on the hand by a mosquito while at the bedside of a yellow fever patient, and was himself attacked with the disease shortly afterwards, from which he died a week later. Of him it was justly written: "With more than the cour-

age and devotion of the soldier he risked and lost his life to show how a fearful pestilence is communicated and how its ravages may be prevented."

A RATIONAL TREATMENT OF CERTAIN SKIN LESIONS DUE TO FAULTY METABOLISM*

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Introduction.—Before undertaking treatment of any kind, our first thought ought to be "The removal of the cause." If for any reason the cause cannot be discovered or cannot be removed then the cause must be made inoperative or else our best efforts are going to be fruitless.

The lesions, which we are about to consider, are due to some fault with the metabolic process. For our purpose it is not really necessary to go into the details of this much unexplored field of metabolism. We must, however, have in mind the fact that the fault may be due to some error in either anabolism or catabolism. It is plain that if the particular skin lesion is the result of anabolism and we direct our efforts to the catabolic process, failure will be the result. It is equally clear that if the lesion is the result of either the anabolic or catabolic process, then local therapeutics can at best be only palliative and not curative.

Under the term anabolism we mean the construction process which goes on in the body as the result of the intake of food stuffs and their absorption and especially assimilation. From this process not only results the normal tissue growth and cell increase, but the repair of injured cells and tissue as well. Without anabolism we could have neither maintenance, growth nor repair. This being so, we at once realize that the food used for the anabolic process is of the utmost importance to the economy. Improper food or improperly digested food can only result in improper anabolism, which in turn, must have its effect upon such structures as ultimately depend upon proper metabolism. An example of faulty anabolism in dermatology is seen in urticaria, psoriasis, dermatitis medicamentosa, etc. Something has entered the general blood stream either by the way of the stomach or the intestines that in this particular case is inimical to the general well being

* American Medicine, Nov., 1913.

of the individual. Treatment therefore, unless directed toward the anabolic process must eventually be a failure. Important as anabolism may be, the process of catabolism is only more so.

We are well aware of the fact that whatever enters the human body must again leave it, unless accounted for in tissue formation or repair, in energy used or stored for future use. All else is foreign to the economy and must again leave it. Food material once having entered the body must, if the normal process is maintained, be reduced to urea and CO_2 if it leaves the body by any other route than the gastro-intestinal tract. Unless such complete reduction does take place, then the attempt to rid the body of such improperly oxydized substances results in irritation at the various points of outlet. Eczema in its various types is the result of such an attempt upon the part of the system to rid itself of toxic material by the way of the skin. The improper reduction of the contents of the intestines is not the only cause of skin lesions. Decomposition and fermentation are perhaps directly responsible for the greater number of such diseases as are recognized as being of gastro-intestinal origin. Without the removal of gastro-intestinal toxemia in the various skin lesions, improvement can hardly be looked for. On the contrary a simple folliculitis or ulcer in a diabetic patient is seldom amenable to therapeutic measures unless the metabolic process is first made normal. Aside from the intestinal tract there remains the destructive metamorphosis of the entire economy, there is continuously going on as the result of the general wear and tear a physiologic disintegration. This dissimulation causes the formation of certain substances, which, if they are not promptly eliminated from the system undergo similar changes to the ones that occur in the decomposition of animal food taken into the gastro-intestinal tract. Whenever we are dealing with a skin lesion in a patient whose urine contains indican little can be accomplished until that patient's urine is free from indican. It matters not whether the animal food taken is decomposed and so forms toxic matter or whether there is in the system an inflammatory lesion with pus production or the mere retention of physiologic disintegration of animal substances in each case there are certain skin lesions as the result of toxemia. Acne and furunculosis is a common result of toxemia. Erythema multiforme and induratum sel-

dom can be cured unless the intestinal tract is made normal and the process of elimination functionates physiologically. If we peruse our external agents used in the treatment of dermatological lesions, we find that they may be placed in one of two classes. Either, they are a stimulant or a sedative. If the lesion appears active, inflammatory, spreading, burning, itching, or painful we use some means best calculated to allay the local hyperexcitability of the parts; in other words we make use of a sedative line of treatment. Our object is to place the local area in such an environment that will cause the individual cells to be less influenced either by the distributing element from within or some infection from without. If, on the other hand the lesion appears sluggish, with no attempt at reaction, with a tendency to chronicity then a stimulating agent is of necessity indicated. Anything from the mildest stimulation to irritation is indicated. The point of stimulation may be carried so far that by over stimulation, actual destruction or death of the part may result. Do what we may and vary our external applications ever so ingeniously we are either using an agent that stimulates or sedates the local area. It may so happen that either the stimulant or the sedative may be an antiseptic, a germicide or antipruritic. If two or more suitable qualities are inherent in one and the same agent, so much the better. The fact remains though, that the lesion cannot be permanently cured if due to faulty metabolism. It is equally true, though, that the lesions may be cured by the *vis medicatrix naturae*, if absolutely nothing is done excepting to correct and insure a normal physiologic metabolic process. Remove the cause and cure results. There is no denying that external medication will materially shorten the time if combined with the appropriate constitutional treatment. We will now consider a few of such lesions individually giving the points of diagnosis, pathology and treatment.

URTICARIA.

Urticaria appears suddenly in those predisposed. Children are slightly more liable to attacks. The lesion is known as the "wheal," a slightly raised sharply circumscribed, edematous flat lesion. The wheal varies in size from that of a pin head to the palm of the hand. No part of the body is free from attack, but the parts subjected to irritation and friction are more liable. The lesion is of a pale pink color

except at the margin where there is a rosy areola. The crops are usually accompanied by itching and burning. They disappear in a few hours only to reappear again. Scratching usually produces larger and a greater number of wheals. Every scratch mark especially if purposely made with the finger nail or other sharp instrument is at once followed by an edematous lesion corresponding to the marking, hence the name dermatographia. Sometimes the disease has a tendency to become chronic, lasting weeks and months. Only two reasons can be assigned for this lesion, either a neurotic or metabolic instability. As all neurotic instabilities are directly traceable to some metabolic irregularity our main attention may be given to the later. Certain articles of diet seem to be the direct cause in some patients, among them are strawberries, cucumbers, clams, oysters, lobsters, fish, pork, cheese, oatmeal and pastries.

Treatment.—If the particular food for which evidently a certain idiosyncrasy exists is known, it may be simple to discontinue such food and cure is the result.

For the local or external treatment there is nothing more efficacious than the brush discharge from the positive side of the static machine. One single application relieves the itching at once and the relief will last for days.

For the systemic treatment, there is nothing better than a brisk cathartic, my preference is castor oil if the patient can take it, if not, use one grain of phenolphthalein every three hours during the day for two or three days according to results. During this time there should be abstinence from all food excepting soured milk or buttermilk. After the third day coarse bread, fruit and vegetables are permissible. Preceding or following each meal the patient should take one or even two doses of a solution of lactic acid bacilli. A man going to business may use compressed tablets of the Bulgarian lactic acid bacilli which are more convenient and perhaps as efficacious. In children under the school age, such treatment is not practicable. The most important points, however, may be summed up as follows: relieve the itching either with static spray or with a one per cent. carbolic acid solution, reduce the food intake to a minimum, give lactic bacillus liquid a dose three times daily, keep bowels open with castor oil or phenolphthalein, grn. $\frac{1}{2}$, every four hours during the day.

PSORIASIS.

Diagnosis.—The lesions appear at first as small hyperemic points which soon become covered with the characteristic silver-grey, greasy scale. These scales may be so fine and few that they escape observation unless raised by scratching with the finger nail, *P. punctata*, or may be so profuse as to be heaped up, giving the appearance of splashes of mortar upon the sound skin, *P. guttata*. Frequently the lesions form round raised patches with the sound skin intervening, *P. nummularis*. In very marked cases these patches coalesce and affect large surfaces, in fact the entire body may be covered with one large patch, *P. inveterata*. When any of the scales are forcibly removed a number of small pin point sized bleeding papillae are seen. During the active stage a rose or red colored margin one-quarter to one-half of an inch wide surrounds the scaly area, while during the quiescent stage the line of demarcation is sharp, ending and beginning with the scales and the sound skin. Points of predilection are in the order named, points of elbow, front of knee, scalp, back and less often all other parts of the body. Subjective symptoms are seldom very pronounced, there is little or no itching or discomfort of any kind. On the contrary the patients usually have the appearance of being in the best of health. A parasite of psoriasis has never been demonstrated, but contagion seems to have produced the disease in others. While antiparasitic medication seems to assist in eradicating the lesions, it must be borne in mind that all antiparasitic medication possesses stimulating qualities which may account for all the good they have seemed to do. The fact that nearly all psoriatics seem to be in otherwise good health raises the question, "Is it not possible that some toxic material which is being eliminated by the skin affects certain locations where there may be a lowered cellular resistance, as the points of the elbows, or the front of the knees?" There is hardly any other part of the body where the skin undergoes so much stretching, contraction and friction as these points of psoriatic predilection. Again it has been noticed that when the patient for any reason fails in his general health, the psoriatic lesions improve correspondingly. In other words this might be construed that other organs were taking up some of the toxic material thereby lessening the effect upon the existing lesions. Were these lesions the result of microbic invasion, the

lesions under a depressed general health ought to increase and become more numerous. Another point of interest is the fact that when the patient is put upon a strictly vegetable and fruit diet, the lesions not only disappear but the patient remains free from them as long as the strict diet is maintained and no longer.

Treatment.—Clear the digestive tract by brisk catharsis, phenolphthalein given in 2 to 3 grain doses, mornings and evenings, causes less disturbance during the daytime, especially is this worthy of consideration, when we remember that psoriasis is more prevalent during youth and middle age and slightly more so in the males than females. All animal food must be interdicted, including eggs and milk. The decomposition of animal food in the intestines produces various toxins which seem to be responsible for the lesion. The intestinal tract must be made and kept as nearly in an aseptic condition as possible. All intestinal antiseptics are a delusion and a snare. The only safe and scientific manner of ridding the gastro-intestinal tract of noxious germs is by causing the contents of the bowels to change from an alkaline to an acid medium. The germs of putrefaction can not thrive in an acid medium. Lactic acid is the media best calculated to serve this purpose. This acid must not be administered by mouth for it would soon be acted upon and with the rest of the intestinal contents be either neutralized or become alkaline. The lactic acid must be formed directly within the intestines from the intestinal contents. The lactic acid bacillus or bacillus bulgaricus must be administered in large doses before or after eating three times daily for at least a period of three to four months. The local treatment depends as to whether the lesion is in an hyperemic and active state or in a stationary and chronic state. If active, then some sedative measure is indicated. A tepid bath with five or six ounces of sodium bicarbonate in the bath is very grateful and has a tendency to soften and loosen any hard scales. Sooner or later all scales must be removed from each patch separately. Immediately following the alkaline bath the parts may be treated to an inunction of oil. It makes very little difference what kind of oil is used, its only function is to soften the scales. As each patch, however, may harbor certain germs, it is well to add to the oil some mercury oleate, making strength of about 20 per cent. of mercury oleate, to 80 per cent. of some bland oil like liquid vaseline. Unguentum salicylicum 2 per cent. is very ef-

fectual. When the scales have been cleared off, the base of the disease must be treated. If hyperemia is still marked a soothing dressing like lotio calaminae is indicated for a few days. As soon as the toxic material leaves the general circulation the hyperemia becomes correspondingly lessened. The most efficient of all external applications after the lesion has been properly prepared is without exception chrysarobin. This ointment in the strength of about five to twenty-five grains to each ounce of vaseline, is applied to the lesions only, avoiding the sound skin as much as possible. The parts so treated must be well protected from coming into contact with the clothing as the stains of this cannot be removed from the clothing and only with some difficulty from the skin. When the lesions have entirely healed the stain gradually disappears. This drug must not be used during the hyperemic state as it acts by its irritating qualities as an intense stimulant to even the healthy skin.

Psoriasis, no matter where located or how small the lesion may be, has a tendency to chronicity and relapses.

ACNE OR COMEDONES AND ACNE INDURATA.

These two affections will be considered simultaneously. Acne is characterized by an eruption of papules, tubercles, and small and large pustules of a dark red or bright color. They appear most frequently upon a seborrheic or oily skin, especially upon the face and forehead during early puberty. In especially susceptible individuals these lesions may appear upon the back and chest. Usually all the various stages of the lesions are present at the same time. When the ordinary lesions of acne are more deep seated or have become infected the area surrounding the sebaceous follicle becomes congested and a hard, deep seated painful nodule is formed, which either breaks down and discharges a small amount of pus, sebaceous material and blood, or else undergoes a gradual absorption and disappears like the preceding lesions, this is primarily a constitutional dyscrasia of gastro-intestinal origin.

Treatment.—The bowels must be emptied and kept so for a time at least. As this disease usually occurs in young robust individuals, phenolphthalein, one grain three times a day for a few days or a solution of Rochelle salts repeated once daily is indicated. The mere emptying of the bowel, while serving a good purpose, is merely an incident. The real effect desired is that

the blood stream be changed and that a flow from the periphery to the center is established, so that instead of absorption from the intestines there is a return from the general circulation to and into the intestines. The diet is of course reduced to the simplest, coarse bread containing bran, vegetables and raw fruit and very little fluids. *The prevention of intestinal decomposition and fermentation is essential.* Each night the patient must take a hot bath, hot enough to cause the perspiration to run down the face. A shower of cool sponging should follow the hot immersion bath. Rubbing the entire body with a coarse Turkish towel finishes the constitutional treatment. Fresh air, especially in the bedroom at night, is indispensable.

Local Treatment.—The parts must be thoroughly cleansed with tincture of green soap, then the soap removed by washing first in very hot, then very cold water. Some few minutes can be judiciously spent each night and morning in this cleansing process. Several changes of hot and cold water are necessary. When the parts have been properly cleansed, bathe for a few minutes and allow to dry upon the parts a solution of hydrarg. corrosivum (1:2000). One of the principal points in the local treatment is to guard against reinfection. Whatever the nature of the germ may be there is no doubt that reinfection is very common, either through the clothing worn or the bed clothing, towels and pillows at the home of the patient. Such patients frequently clear up all the lesions while away upon a visit, only to break out again upon their return. Serum injections have given some very good results in well selected cases, autogenous vaccines seem theoretically as well as practically indicated. When the sebaceous glands seem particularly active, the use of the X-ray has given very satisfactory results, but it does not seem that an agent as dangerous as the X-ray is ever indicated in acne. It would seem to me an agent of last resort and then it ought not to be used. Individual lesions, if suppuration has taken place, must be opened, evacuated and treated as any other septic local area.

ROSACEA.

In the beginning this lesion manifests itself as a simple localized hyperemia of the nose and the cheeks. This oft repeated hyperemia directly or indirectly leads to a paralysis of the capillaries with the result of blood stasis. Later the smaller

blood vessels become engorged and remain so permanently. In addition to this we may have an acne indurata engrafted upon the lesion and we have a typical picture of rosacea chronica. The lesion is slightly more common in women than in men. Evidently the disease is a circulatory neurosis due to some reflex disturbance most frequently of gastro-intestinal origin.

Treatment.—The diet of the particular patient must be inquired into. Excesses of any kind discovered and eradicated. A complete change of diet regardless as to what it is, has often cured the lesion. Auto-intoxication must be prevented. Ichthyol given in gradually increasing doses from five to fifteen grains once or twice per day has given good results. Better still the bacillus bulgaricus administered fifteen minutes before eating assures success.

Local Treatment.—If acne lesions are present they may be looked upon as infection from the outside in a region that has become susceptible or at least possesses a lowered resistance. The usual cleanliness and antiseptic treatment laid down for acne is indicated here. When the larger vessels have become dilated, their lumen must be destroyed. Electrolysis works promptly and efficiently. The negative needle with the galvanic current of about 2 to 3 milliamperes is introduced within the lumen of the vessel for one-half of an inch or more. The positive pad electrode may be placed at any convenient location as upper arm or shoulder of the patient. The current must be started at zero and allowed to flow until the frothing at the needle indicates that decomposition has taken place. The current is again reduced to zero before withdrawing the needle. Five or six vessels may be destroyed at one sitting.

BALDNESS OR THE LOSS OF HAIR.

Why man should lose his hair even with advancing age has never been satisfactorily explained. To say that baldness is the result of old age is not a scientific explanation. There is no reason why, physiologically, man should not retain the hairs upon his head even at advanced age the same as he does the beard upon his face. Besides diseases of the scalp and hair, there is what has been termed "premature baldness." Young men and women too, at the age of twenty or thirty begin to lose their hair. It cannot be said that this is due to old age, neither do we see any other good and sufficient reason for the same. The

scalp and hairs show not the slightest sign of disease, yet the hairs fall out. Another interesting feature is the fact that only the top or the crown of the head is so affected. When the hairs have fallen out, a new crop usually grows, but this second and even third crop attains no size and seems to die off before it gets well started. After one or two such futile attempts at regrowth, permanent baldness is established. We know that certain diseases are followed by a loss of hair and regrowth of the same as soon as complete recovery has taken place. In such cases a toxic material in the blood would account for the loss of hair. Fright, worry, shock and emotion have caused the sudden loss of hair. We know that such psychic conditions leave toxic materials in the blood, hence the possibility of the denutrition of the hairs, at least for the time being. Whenever a person has passed through a severe illness of any kind the fingernails become brittle and have a tendency to dry up and crack. When recovery takes place a sharp line of demarcation is seen across the fingernails, showing that the nails are again being supplied with their normal nutrient material. Again a toxemia has affected the nutrition of the dermal appendage. *Reasoning from the above would it be too much to claim that "premature baldness" might be due to toxemia of intestinal origin?* If we examine the scalp of such patients we find as a rule a thin, closely adhering scalp. In fact the top of the head presents the only surface where the skin lies so closely to the bone over such an extended area. When therefore in a normally, with blood poorly supplied area, we add a toxemia, the result of anabolism or catabolism we ought to find an easy explanation of the loss of hair in such a locality.

The application of proper therapeutics seems to bear out this hypothesis.

Treatment.—As hair is almost entirely composed of proteid material, we must supply the economy with at least sufficient of such proteid matter. In practice the best results are obtained from such leguminous substances as beans, peas and lentils, bread made from whole wheat and rye flour. Such a diet is the mainstay of the German army and baldness in the army is practically unknown. The gastro-intestinal tract must be kept normal, constipation overcome or prevented. *Decomposition and fermentation the result of the colon and other bacilli*

must be fought with their natural enemy, the bacillus bulgaricus.

Local Treatment.—The scalp must be raised from the skull by the application of vacuum cups every other day for a few minutes. The vacuum treatment as laid out by Bier causes an active hyperemia and a dilatation of the blood vessels, especially the capillaries. Look out for paralysis of blood vessels. For a few minutes dry heat from a fifty candle power incandescent light is then applied. This superficial heat enhances the hyperemic effect of the cupping. When the scalp is thus softened, loosened and heated the high frequency discharge from a vacuum glass electrode is applied; this discharge is a stimulant to the performance of physiological function, which in this case is the regrowth of hair upon the scalp. The results during the past three years have been more than satisfactory.

All these enumerated lesions are depending almost exclusively upon some perversion of the metabolic functions of the system. Either there is an intake of improper food or insufficient elimination of noxious materials formed within the gastro-intestinal tract. A word regarding the prevention of decomposition and putrefaction in the intestines. Professor Metchnikoff of the Pasteur Institute of Paris, showed conclusively that all intestinal so-called antiseptics were a myth. At the same time he demonstrated that when the bacillus bulgaricus was administered in sufficiently large dosage, enough lactic acid would be formed from the intestinal medium in the intestinal tract, that the colon bacillus and all other germs, requiring an alkaline media, could not multiply nor even maintain themselves. Our own clinical experience has convinced us over and over of the futility of treating such lesions merely locally. Equally well are we convinced that intestinal cleanliness is at the root of all recoveries. That coffee colored muddy complexion without any apparent lesion clears up in a very few weeks after the decomposition in the intestines ceases. In all patients who have that "cachectic" appearance examine the urine. If indican is present there is animal decomposition. Such a complexion cannot be made clear unless the intestinal absorption is physiologic instead of pathologic.

SYPHILIS.—The treatment of syphilis does not end with mercury, nor even with 606. Fresh air and an outdoor life are probably as helpful in syphilis as they are in pulmonary tubercle.—Hospital.

VINCENT'S ANGINA*

By Douglas Wood, M.D., C.M., of Minneapolis, Minn.

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VINCENT'S Angina is an inflammation attacking the respiratory mucous membrane chiefly of the pharynx, mouth and larynx.

History.—Rauchfus and Meyer were among the first to demonstrate the so-called Vincent's spirochaete and fusiform bacillus. This was in 1892 and 1893.

In 1896 and 1898, Plant and Vincent described the condition more fully. Vincent, especially, demonstrated the fusiform bacillus and spirochaete in the ulcerative types of the mucous membrane of the throat and in hospital gangrene. It was his able and extensive work on the subject that has caused the name "Vincent's Angina" to come into constant use. There has been very little written on the subject since. A series of cases have been reported by Holms, Murry, Shea and some others.

Bacteriology.—Until a very short time ago, most writers regarded the spirilla and fusiform bacilli, as two distinct organisms. In 1906, Ruth Tunnecliff went far to show that it was the same organism. Lately, Dr. Larson of the University of Minnesota Laboratory, was able to grow the so-called bacilli and spirilla and show that they were one and the same, i. e., the so-called "Fusiform Bacilli" is a "resting form" of the Spirilla. The fusiform bacillus is not a bacillus but is said to be a protozoa belonging to the same group as the *Treponema Pallida*. Dr. Larson questions this.

The forms are cultivated with difficulty and are strictly anerobic. Both cultures have an odor. Both forms are motile but sluggish. They stain with any simple aniline dyes or Indian ink, readily with methylene blue or carbol-fuchsin and are decolorized by Grams, so can be readily differentiated from the diphtheria bacilli. The fusiform bacillus, so-called, is a large fusiform rod, 4 to 5 micro-millimeters long, slightly pointed at each end, much like the diphtheria bacillus, but larger and more regular in size. There are frequently two bacilli, end to end, though they may form chains and never seem to be in the same plane with each other.

The spirillum varies in the number of twists from 2 to 12 and may be seen branching. It is from 6 to 12 micro-millimeters

long. Many other forms of bacilli and cocci are found with them.

Etiology.—The condition is due to a spirillum and so-called fusiform bacillus always seen together. The disease attacks all ages after dentition and both sexes alike, probably commoner in children. This is very suggestive of the probable relationship between pathological conditions of the teeth or gums and Vincent's Angina. Animals inoculated from the cultures of the spirilli or fusiform bacilli, singularly or in combination, show little reaction. Abscesses seldom occur following inoculations. The two forms are found frequently in the normal mouth.

All of my adult cases had pyorrhea from which I was better able to demonstrate the organisms from the pyorrhea pockets than from the ulcers themselves. This has also been the experience of Dr. E. H. Parker.

Vincent states that in hospital gangrene observed in Algiers, he found a spirillum and a fusiform bacillus, which was identical with this disease. Holm found the combination in nine per cent. of his cases of sore throat. It is said to be most common in spring and autumn.

There is generally a history of lowered resistance with some nose and throat trouble, especially, hypertrophied tonsils and adenoids and defective gums. The organism is often found in the follicles of the hypertrophied tonsils without any apparent reaction, and generally in combination with streptococci, staphylococci, etc. Rosanquit found the organisms in many of the forms of the necrosed tissues, especially hospital gangrene, noma, etc.

There is no question about the condition being contagious, for in five of my cases in children, all developed the infection, one after another, all having drank out of the same dipper that an adult was drinking from who gave a history of Vincent's Angina.

Pathology and Symptoms.—Some epidemics are more virulent than others. The condition may be very superficial or very extensive. It may be acute but more commonly seen as subacute or chronic. I saw one case that continued for months, one ulcer hardly healing before another developed.

In a typical case, the symptoms are usually very mild with no systemic disturbances such as chills, fever, etc., and no pain except on motion of the part. In all but one of my cases, this was the rule even when half of the tonsil was destroyed. Some de-

*Read before the Southern Minn. Med. Assn., St. Paul Med. Jour., Dec., 1913.

scribe a burning sensation at sight of infection.

It generally begins in or about the crypt of the tonsil but may attack any part of the mucous membrane of the mouth, nose, pharynx, larynx and even the bronchial tubes.

The superficial type is limited to the mucous membrane. There is a slight redness and edema about the follicles of the tonsil. Resolution may take place or a membrane may develop. The membrane is generally found to be thinner and more transparent or cheesy than the diphtheria membrane, much like a mucous patch. If ulceration is present, it is generally superficial and limited to the mucous membrane.

In an atypical case the ulceration is deeper and the membrane closely resembles diphtheria. This membrane has a dirty greenish or yellowish-white appearance followed by bleeding when removed and soon reappears, showing that the condition has extended through the basement membrane. The part may heal or ulceration may follow which may destroy the whole tonsil.

In the deeper ulcerative form the process seems to begin at the base of the crypt of the tonsil, as the whole part may slough off so rapidly that it looks like a death en-masse involving a part or the whole of the tonsil. These ulcerations may be taken for syphilis or tuberculosis.

It is generally unilateral and shows very little reaction outside of the actual involvement.

There is nothing especially characteristic about the ulcers except the little local reaction. They are often covered with dirty old rag membrane. In either case there is little pain or systemic disturbance.

The cervical and submaxillary glands are generally enlarged but less so than other infections of the throat. Where there is an ulceration or loss of tissue, there is a marked, characteristic odor which resembles the ordinary pyorrhea odor.

We may see three stages in the mouth at the same time. Some of the ulcers of the mucous membrane in the cheeks of children are indurated and cause but slight disturbance.

In malignant cases the necrosis proceeds rapidly and the tissues melt away. The gums are spongy and bleed easily as in scurvy. The patient dies with little rise of temperature, rapid, feeble pulse, excited nervous system, profound prostration and toxemia. Three such cases have been re-

ported. In my case of noma, the spirilla were more deeply seated than the fusiform bacilli and as Ellenmann says, seemed to prepare the way for the bacilli. In the extensive ulcerative cases there was an abundance of streptococci. Those cases of noma that the old text-book describes are without a doubt the malignant form of Vincent's Angina. Dr. Larson, of the University of Minnesota, was able to demonstrate the spirillum in the blood of a case of noma or Vincent's Angina that recently died in Minneapolis.

J. H. Rothwell reports two cases of bronchial affections followed by pneumonia in which there was a bloody sputum filled with the spirilla and fusiform bacilli.

Diagnosis in a Typical Case.—1. A superficial membrane with or without a superficial ulcer.

2. Most common location about the follicles of the tonsils or on the soft palate.

3. Generally unilateral.

4. Nearly always associated with pyorrhea.

5. Comparatively free from constitutional disturbances.

6. Little pain except on motion. Much less than in tuberculosis or quinsy ulcers, but rather more than in tertiary syphilitic ulcerations.

7. Glandular enlargement much less than in diphtheria.

8. Little reaction outside of part infected.

9. The crucial test is finding the spirilla and so-called fusiform bacilli, especially when the condition resembles diphtheria.

Treatment.—Various antiseptic solutions have been used. As most of the infections start in or about the follicles, I have had best results with silver nitrate. First, cleaning out the crypt, or in case of an ulcer, the base, with hydrogen-peroxide, then fuse silver nitrate on a probe and touch up the ulcer. In the case of the crypt, cauterize to the bottom. The pyorrhea must be treated by a dentist successfully. Touch up the gums with the tincture iodine and give them hydrogen peroxide gargle because the organism is anerobic. Later, take care of the hypertrophied tonsils, adenoids and nasal conditions. Pike says it is hard to get rid of the spirilla even after teeth are treated and the pus is gone. You may have to use the silver nitrate three or four times. All of my cases responded very rapidly to this treatment.

Potassium chlorate internally and as a gargle has been said to be a specific. This

is not my experience but I do believe that silver nitrate is as much of a specific as anything.

Conclusion.—Vincent's Angina has been known only for a few years. It is comparatively common and without being recognized, would account for the many unsuccessful results in the treatment of angina that would otherwise be simple. Four of my cases, gave a Wassermann positive. We know that the sleeping sickness and the syphilitic spirilla give a Wassermann positive. The question arises as to the effect the Vincent's spirilla would have on the Wassermann's test, especially in a chronic condition. Several cases of Vincent's have been reported cured with Salvarsan.

TUBERCULOSIS OF THE LARYNX*

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THANKS to the recent active crusade against tuberculosis, the laryngeal form of this disease is not nearly so fatal as it was a decade or so ago. At that time the mortality from this affection was over 50 per cent. Now it is 28 per cent. This improvement has been brought about mainly through the early identification of the disease. In no complaint is prophylaxis of more significance than in this one. It is often possible to perceive in the larynx a pretubercular state, in which tubercular changes are apparent before they are detected in the lungs. This is the time to act, to prevent the dissemination of the disease. Not long ago I saw a man with this condition. I advised him to go to a sanitarium for tuberculosis. He was refused admission on the ground that no evidences of pulmonary tuberculosis were present. I lost track of him for eight months, then he came to me with all the symptoms of pulmonary phthisis. Again he asked to be admitted to the sanitarium. This time he was rejected because the disease had gone beyond the incipient stage.

Laryngeal tuberculosis occurs oftener than is suspected. Competent clinicians can detect symptoms of it in the majority of tuberculous subjects. Autopsies show that the larynx is diseased in 72 per cent. of those who succumb to pulmonary phthisis. An interesting postmortem finding is that about 70 per cent. of the bodies that are brought to the autopsy table in large cities show evidences of healed tubercular

lesions in the lungs. From the fact that most of these people have recovered from the disease, it is apparent that tuberculosis is not as deadly as it has been thought to be. Up to the twentieth year, at least 90 per cent. of mankind are infected, but not necessarily diseased with tuberculosis. Unfortunately, laryngeal tuberculosis does not offer the same chance of recovery that a tubercular lesion elsewhere does, but each year witnesses some progress in this direction.

The disease under consideration is mostly found in persons between the ages of 20 and 40. This is the period of life in which the expenditure of energy is greatest and the conditions for tubercular invasion are most favorable. The disease is very rare among children. This can be explained on the ground that owing to the activity of their glandular system, the infection is diverted to the glands of the neck. Formerly children with swollen cervical glands were said to be scrofulous, which is but another term for the tubercular diathesis in the infant.

Tuberculosis attacks the larynx of males oftener than females, in the ratio of three to two. This is partly because men, by nature of their vocation, are more frequently exposed to the inclemencies of the weather, which beget catarrhal complaints, the forerunners of throat troubles. Then again men are oftener compelled to use their voice under disadvantages. Men, however, have a better chance of recovering than do women, pregnancy and other sexual changes being responsible for the increased mortality among women. A female who suffers from laryngeal tuberculosis, or even one who is suspected of having the disease, should be warned against becoming pregnant, at the risk of her life. If gestation should occur, it must be intercepted, otherwise both mother and child are likely to perish. A fortunate provision of Nature is that tuberculous women seldom conceive, and when they do, they generally miscarry. Not one authentic case has been observed in which a woman with tuberculosis of the larynx has survived longer than a year after the birth of her child. A pregnant woman, in order to sustain herself and her fast-developing fetus, requires much more nourishment than is customarily taken, perhaps an irritable stomach retards the assimilation of even the normal amount of food. In that case the reserve energy that is stored away in the form of fat is drawn upon and the health declines. An-

* American Practitioner, Sept., 1913.

other danger is that the expanding abdomen will crowd the lungs and impede respiration, thus placing a greater strain upon the larynx and other respiratory organs, which are already hard pressed.

Nearly all observers are agreed that laryngeal tuberculosis is always transmitted from the lungs, the channel of infection being the lymph ducts. This view is strengthened by the knowledge that the initial laryngeal lesion nearly always occurs upon the same side as that of the pulmonary deposit. Cases are occasionally cited in which the larynx alone is diseased, the lungs showing no physical signs of tuberculosis. It was formerly thought that in these cases the infection came from without, but this has been disproved. It is explained in two ways. Either the laryngeal lesion is the recrudescence of an old tubercular focus that was deposited at some previous time, when the lungs were diseased and were the source of infection, or, that the lesion in the lungs is deeply seated and not apparent to physical examination. Absence of bacilli in the sputum and even absence of sputum are not conclusive proofs of the nonexistence of pulmonary tuberculosis, since both sputum and bacilli are not found until the disease is well under way, and after the lung tissue has broken down and the liquified mass has been coughed up.

Tubercle bacilli are well nigh indestructible. Virulent germs have been found encapsulated in bronchial lymph nodes twenty years after the lungs had recovered from the infection. There is reason to believe that this same phenomenon can occur in the larynx, the recurrence being due to some general dyscrasia, associated with a laryngeal disorder.

It is hardly possible for tubercular germs to reach the larynx through surface infection, from the sputum or through respiration, when we take into consideration the nature and the habits of the infecting organism. Tubercle bacilli are turgid, slow growing germs, that require for their propagation a certain degree of warmth, a comparative absence of air and a quiet resting place. These requirements are not to be found in the larynx, the mucous membrane of which is so exquisitely sensitive that a foreign body of any kind excites a flow of mucus and a fit of coughing that causes them to be expelled. If primary infection of the larynx were possible, the lesion would probably occur in the pyriform fossa, just above the larynx. These fossae

are the catch basins of the throat. They receive the secretions that drain from the nose and throat and divert them into the esophagus. Having a rich lymphatic supply, they are ideal places for surface infection. As a matter of fact they are rarely the seat of tuberculous deposits. Another point against surface infection is that a tubercular deposit in the larynx starts in the deeper parts of the larynx and gradually makes its way to the surface.

The pathology of tuberculosis of the larynx is precisely like that of a similar lesion in any other part of the body. The unit of all tubercular foci is the giant cell or miliary tubercle. A laryngeal focus consists of a mass of these cells in the substructure of the larynx. It is accompanied by certain destructive changes which are peculiar to this disease. As the destruction proceeds, the infiltrated areas become larger, and finally it softens and breaks down, the debris seeking an exit at the point of least resistance.

Occasionally we see a larynx in which the tubercular changes can be followed from the first stage to the last. The first change that is noticeable is a hyperemic patch or swelling of the mucous membrane, either upon the vocal cords or in the post-laryngeal wall. After a time tiny yellow spots can be discerned beneath the swollen area. These are the miliary tubercles which presently reach the surface and become tiny disseminated ulcers. These rapidly coalesce into one large shallow ulcer that looks like a slice of raw bacon with irregular worm eaten edges. Auto-infection of the rest of the larynx gradually takes place, and ultimately the entire larynx becomes infiltrated and diseased. The rapidity with which a tubercular deposit reaches the ulcerative stage depends upon the site of the lesion and upon the activity of the disease process. A lesion upon one of the vocal cords soon terminates in an ulcer. This is on account of the scarcity of epithelium, and because of the undue amount of attrition to which this part of the vocal cord is subjected. On the other hand, an infiltrated area in the post-laryngeal wall may last for years before it breaks down. This is because of the limited motion and the thickness of the mucosa at this point. A lesion at this site is apt to cause early discomfort in swallowing, owing to the proximity of the esophagus. Generally, when the disease in the larynx has reached the stage of ulceration, that in the lungs has advanced to cavitation.

The exudate from a tuberculous ulcer is at first thin and watery and is laden with tubercle bacilli. Soon, however, pus cocci invade the field, and by their more rapid propagation soon displace the bacilli. The exudate then becomes of a thick ropy consistency and contains comparatively few tubercular germs. It is difficult to find tubercle bacilli in the discharge of other than a fresh ulcer excepting near its base. The yellow exudate that frequently covers an ulcer of one of the cords is apt to mislead the inexperienced eye into the belief that the cord is normal in color.

In looking at a chronic tubercular ulcer of the larynx we are struck with the profuseness of the pale and edematous granulations. It is the reparative process which follows all tubercular changes. By means of it Nature attempts to stem the tide of infection and to seal the breach made by the disease. Tubercular granulations, however, are so unlike healthy ones, and so devoid of nutrition, that they usually defeat their very purpose, and retard rather than assist repair. In certain instances the granulations can be stimulated to healthy action, and then healing takes place, a layer of connective tissue replacing the granulations. Sometimes a larynx is seen in which destruction is going on in one place and repair in another. In this way repair equals waste and the disease drags on for an indefinite period before it assumes a serious aspect. Occasionally the scar tissue that replaces an ulcer contracts to such an extent as to make breathing difficult.

Individuals who use the voice as a source of livelihood and those who suffer from intercurrent attacks of simple laryngitis, whenever the weather is unfavorable or when they have a cold in the head, are the ones who are predisposed to laryngeal tuberculosis. A chain will break at its weakest link. In the same way a super-sensitive larynx offers the least resistance to tuberculosis. Unquestionably a nasal disorder is the underlying factor in many of these cases, as it is the predisposing cause of nearly all throat complaints.

The earliest symptoms of laryngeal tuberculosis relate to the voice. As a rule the disease has such an insidious onset that its presence is not noticed until the tubercular infiltration renders the apposition of the cords mechanically impossible. The first complaint is a slight hoarseness and a sense of discomfort in the larynx. These symptoms are soon supplemented by a dry hacking cough. Frequently the symptoms

are precisely like those of a simple laryngitis, and it is not until their stubbornness arouses suspicion, that closer investigation reveals the true condition. It is then that other symptoms of tuberculosis are often brought to light, such as a rapid pulse, accelerated respiration, subnormal morning temperature or slight afternoon fever, or declining weight. A persisting hoarseness that is attended with a dry cough which is often violent and paroxysmal in character should always be investigated. The symptoms of laryngeal tuberculosis are worse at night, owing to the decline of the physical powers. Patients with laryngeal tuberculosis exhibit far more languor and debility than those with lung disease alone. They have a peculiar worried and haggard look and they talk with an effort. Their most troublesome complaints are the excessive dryness and irritability of the throat and the dry cough. These symptoms are particularly annoying to women. The excessive dryness of the throat is akin to the dryness of the skin and hair from which nearly all tuberculous subjects suffer. It is due partly to defective secretion and partly to the abstraction of moisture by the febrile process.

Hoarseness occurring in a person suffering from pulmonary tuberculosis is certainly suggestive of laryngeal involvement. It, however, can come from another source, such as a collection of dry sputum, or by a crust of mucus in the larynx, or it may be due to impairment of one of the recurrent nerves, either from pleuritic adhesions or from the pressure of enlarged bronchial glands.

Inspection of the larynx in the early stage of laryngeal tuberculosis reveals at the first glance but little of a diagnostic nature. There may be nothing discernible excepting a patch of hyperemic mucous membrane, or perhaps a faint swelling. Closer inspection shows that the movement of the vocal cord on the side of the lesion is not as free as it should be, and that the movement of the arytenoid is restricted. Sometimes a tubercular nodule can be seen upon the free edge of the vocal cord. It resembles a singer's node. There is something about a tubercular lesion in the larynx which to the experienced eye makes it distinctive of this disease. It is the infiltration that surrounds the lesion. In many instances doubt about the nature of a suspected lesion is dispelled by the observance of general symptoms of tubercular toxemia, such as failing weight, night sweats and so

on. When the disease in the larynx has become well established, it can scarcely be mistaken for any other disease. This in spite of the fact that no other disease of the larynx presents so many variations from what may be considered the typical form, as tuberculosis of the larynx. When the disease has reached this stage the membrane assumes an ashy pallor which is in keeping with the general anemic appearance of the individual, and signifies the destruction of the red blood corpuscles. The landmarks of the larynx are obscured by edematous swellings. The normal prominences of the arytenoids are effaced by pyriform infiltrations and the epiglottis is swollen and turban shaped. Looking beyond the upper boundary of the larynx we see the soggy interior. We notice that the cords do not meet in phonation and that an abundance of thick mucus is present. Careful examination will generally reveal an ulcer, more or less extensive, either upon one of the vocal cords or in the posterior commissure. The ulcer is usually much larger than it appears to be in the mirror. It is irregular in outline, of a dirty unhealthy color and covered with a yellow exudate. The presence of numerous pale frog spawn granulations attest that attempts at reconstruction have been made. These granulations are at times so abundant as to materially lessen the caliber of the larynx and make breathing difficult. Occasionally a larynx is seen in which the disease is confined to one side for a year or more before the entire organ becomes infiltrated. As long as the tubercular disease is confined to the interior of the larynx its progress is slow and comparatively little suffering is experienced, but as soon as the disease extends to the epiglottis or to other extralaryngeal parts, its course is rapid. In general terms the nearer a tuberculous lesion gets to the mouth the more rapidly fatal it becomes. The moment dysphagia is added to the patient's suffering the prognosis becomes bad.

Incipient tuberculosis of the larynx is more frequently encountered than we think, but if rightly treated, the chances of recovery are good. The fact must be recognized that the laryngeal lesion is generally but a phase of a general constitutional dyscrasia which is best combated by fresh air, hygienic surroundings and good nourishment. Rich oxygenated blood is the most efficient destroyer of tubercle bacilli. From the knowledge that most throat disorders have their beginning in the nose, it is the

part of wisdom to establish normal nasal respiration before doing anything else. The removal of diseased tonsils in these cases is also helpful if they appear to irritate the throat. Comparatively few physicians when they send tuberculosis patients to the mountains, examine their nostrils to see if they can obtain the benefit of the air by natural breathing.

It is the practice of many physicians, when a patient complains of symptoms of commencing laryngeal tuberculosis, to prescribe a sedative cough mixture, instead of probing into the cause of the symptoms. The indiscriminate giving of cough remedies has done much irreparable harm to this class of sufferers. Frequently the cough is lessened, but it is at the expense of the health and the appetite. When the diagnosis is finally made, much valuable time has elapsed and the disease has made serious inroads. Coughs are of two kinds, bronchial and throat. The former is usually a salutary measure and should be encouraged, since its purpose is the removal of secretion from the chest. The latter is generally caused by a supersensitive throat or by a foreign body, and must be treated differently. The amount of energy expended in coughing is often very great. It is estimated that a person who coughs or clears the throat once every 15 minutes for 10 hours, uses up power equivalent to 250 heat units. This equals the nourishment contained in three eggs and one pint of milk. In normal respiration the air is expelled from the lungs at the rate of 4 feet per second, while in violent coughing it may attain a velocity of 300 feet. This waste of energy is highly injurious to tuberculous subjects. The assimilative functions of these people are already working under great disadvantages and the inability of the digestive organs to assimilate the additional food that is required to offset the loss of vitality induced by the coughing, causes emaciation.

Rest to the voice is one of the best ways of overcoming a laryngeal disorder. When this cannot be secured, a compromising measure is to advise speaking in a subdued voice. If the occupation is prejudicial to the throat, it should be changed. There is no use trying to cure a tuberculous larynx if the voice is unduly used, or if it is exposed to dust, draughts, or to a cold and raw atmosphere. Fatigue, worry, and crowded, dark, or ill ventilated places should be avoided. The patient should live in a temperature as nearly uniform as pos-

sible and should refrain from doing anything which might cause his temperature to rise. An increased temperature favors the development of the tubercle bacilli, hence the frequency of tuberculosis in the cow, whose normal temperature is 102° F.

Perhaps the greatest restoratives in tuberculosis are rest and sleep, particularly in the open air. Coughs that occur when a person goes from a warm room into a cold, usually disappear by sleeping in the open. Foul air, and not cold air is accountable for most colds and coughs. Esquimaux are seldom sick in their native land. It is not until they live in houses that their health departs. Peary and his men were free from colds and coughs as long as they lived out of doors, but as soon as they slept in houses their ailments returned.

Tuberculosis is seldom contracted in summer, for this is the season of the year that people live a more natural life and get the benefit of the fresh air and sunshine. Tuberculosis has been termed the bedroom disease. The very air that is so wholesome in summer, in winter, in a closed room, becomes contaminated and is converted into our worst enemy. It seems that the luxuries that provide us with comfort, in winter deprive us of our vigor and disease resisting power. Infinitely more diseases are contracted in crowded cars and stuffy theaters than by exposure to cold. Cold air is more beneficial than warm, even though the latter be just as pure. It is well known that invalids in the Adirondacks enjoy better health in winter than in summer. The cold air energizes the lungs in the same way that a cool draught stimulates a flame.

Fewer people would suffer from throat disorders and from tuberculosis if they would expose their bodies more freely to the air. It is a common observation that whenever feminine fashion calls for an exposed neck and chest women have comparatively little trouble with their throat or bronchial tubes. Most of our celebrated singers have learned that to harden their vocal organs to atmospheric changes insures them against vocal disorders. The cutaneous respiration of a healthy person is 5 per cent. that of the lungs, and the percentage is much higher in a person whose lungs are not functioning properly. It is imperative, therefore, that all sufferers from tuberculosis should derive as much benefit as possible from cutaneous respiration. Upon the mountains of Ger-

many and of Switzerland, certain sanatoria for tuberculosis have been established, where the inmates are obliged to live in a state of comparative nudity the year round. I have been told that the results from this treatment are the best yet attained. In the height of winter children can be seen playing around on snow-shoes, with only a bathing suit on. A few months before these very children were wasting away with tuberculosis.

Every person with tuberculosis and every tubercular suspect should have the throat examined periodically in order to guard against the larynx becoming diseased. In most sanatoria for tuberculosis the larynx is occasionally inspected, but oftentimes the work is done in a perfunctory way and very little good is accomplished by it.

The use of the time honored cotton swab, with which to apply an astringent to the larynx should be dispensed with in incipient tuberculosis of the larynx, where there is no abrasion. We should refrain from inflicting additional traumatism and causing greater suffering by useless local meddling. This matter of making applications to the larynx whenever that organ is diseased, is unscientific and unwarranted. Fortunately the swab seldom reaches the interior of the larynx. When it does, it strangles the patient and otherwise causes needless distress. A fine down spray atomizer and a simple alkaline wash, such as Dobell's solution, is sufficient to cleanse the larynx and produce comfort. Finely powdered iodoform suspended in olive oil or albolene can be sprayed into the larynx to relieve the cough of an irritable larynx, or it can be applied by means of a piston syringe with a long bent canula. Inhalations of creosote or guaiacol in oil serve a similar purpose. Night coughs may be relieved by tying a cold damp cloth around the neck, or by sipping warm milk, preferably with the albumen of an egg. Sedatives are to be withheld as long as possible.

In the ulcerated stage of laryngeal tuberculosis, laryngeal applications are often useful. From time to time certain drugs have been advocated as having special advantages in the treatment of tuberculosis of the larynx. Lactic acid, orthoform, formalin and ichthyol, are the drugs principally recommended. In my belief not one of them is generally applicable excepting ichthyol, which stimulates the ulcer to healing. Recently much has been written about the advantages of injecting alcohol into

the sensory nerve of the larynx, the superior laryngeal. The results have been disappointing. Much was hoped from tuberculin, but thus far it has been found wanting. Unquestionably the serum treatment of tuberculosis will eventually be perfected, but until it is, we will be compelled to use older and tried methods. A distinct advance in the treatment of tubercular ulcers has been made by the introduction of fulgeration. By this method, the lesion is seared, as with a hot iron, with the sparks from the high frequency current. The sparks are caused to jump from an insulated applicator to the raw surface, the other electrode being fastened to the neck.

Most physicians display too much timidity in dealing with an open lesion in the larynx. They are apt to resort to topical applications and sedatives when more radical measures are demanded. If the fundamental principles of surgery are observed there is no fear of infection, hemorrhage or septic pneumonia. A laryngeal ulcer should be treated in precisely the same way that a tubercular ulcer elsewhere is treated. Our purpose is to convert a sluggish ulcer into one with a healthy granulating surface. To do this we must provide cleanliness, free drainage and stimulation. Surgery of the larynx should only be attempted during the quiescent period of the disease. Of course, when respiration is embarrassed owing to the lesion, immediate relief is called for. The instrument best adapted for cleansing and stimulating a laryngeal ulcer is a sharp curette, carefully and thoroughly applied. A week or two afterward the curette can again be used if some unhealthy granulations remain. An edematous swelling is an occasional occurrence in tuberculosis of the larynx. Multiple linear scarification generally relieve this condition.

Perhaps the greatest distress that these patients have comes from the swollen epiglottis, which makes deglutition painful and difficult. It is essential that an excess of nourishment be taken and this can be done only under the most favorable conditions. If the ingestion of food causes pain very little is eaten and the disease makes great headway. For a long time I hesitated to remove a swollen epiglottis, fearing hemorrhage or inspiration pneumonia. Experience has taught me that the epiglottis can be removed with impunity, and that it is not essential to the well being of the larynx. My procedure is to grasp the epiglottis with a tonsil forceps and to make traction,

then by means of a tonsil snare the entire ledge of the epiglottis is removed. The pain is very slight. The relief is very great.

There are times when active treatment of the larynx or its adnexia is contraindicated. For instance when the pulmonary disease is active or when the laryngeal disease has reached a stage where a return to health or comfort is beyond hope. In such cases treatment should be entirely symptomatic and applied as occasion demands.

Sea voyages are to be avoided on account of the liability of edema of the larynx, from the saline vapor. A person with a laryngeal disease should always be within reach of a physician conversant with the larynx, in case of emergency.

The question of nourishment is an important one in any form of tuberculosis, particularly in the laryngeal form, on account of the difficulty in swallowing. Early in the disease the amount of food taken may be moderate, just enough to keep the body weight from declining. In the advanced stage the food should be abundant in quantity and rich in carbohydrates, to overcome the loss induced by the disease. Thick demulcents can be taken with less discomfort than thin fluids. A good way to administer food when swallowing is painful is with a catheter passed through the nose, and past the epiglottis. Spraying the throat with a one-half per cent. solution of cocaine frequently enables food to be taken when it is refused without it. Rectal feeding is often beneficial when the throat and the stomach need rest.

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[Translated for MERCK'S ARCHIVES]

TREATMENT OF EPIDIDYMITIS WITH ARTHIGON IN COMBINATION WITH ICHTHYOL*

By Dr. Saynisch

THE various methods of treatment recommended for gonorrhoeic epididymitis are sufficient evidence that specific measures have not been available. All require as chief measure absolute rest, but this necessitates that the patient give up his work for a certain length of time. When ambulatory treatment has been resorted to, no ulcers generally remained behind or recurrences were the result.

The long rest in bed usually necessary has stimulated Dr. Saynisch to seek for

*Deutsche med. Wochenschrift, 1913, No. 40.

other methods which might shorten the course of the disease. Since the introduction of Arthigon the problem seems to have been solved. Still better results will be obtained if the Arthigon is combined with Ichthyol.

Puncture or incision is to be condemned since painful and since there is always danger of injuring normal tissue, so that the probability of sterility, which is already 40 per cent., is increased.

Ichthyol is a drug well known for its analgesic and absorptive properties. The author makes a point to indicate that that of the many substitute preparations he was careful to use only the genuine product, "Ichthyol," prepared by the Hamburg Ichthyol Company, as it never causes any local reaction. The treatment advised by the author is as follows:

The diseased half of the scrotum and seminal cord to the height of the navel is painted with pure ichthyol and covered with a moderately thick piece of cotton. It is best not to use the absorbent cotton but the common cotton batting which will not absorb the ichthyol. Finally, a firm suspensory bandage is applied. The diseased organ is thus enclosed in a firm bandage and no tension on the testicle or epididymis is possible. After 3 or 4 days the dressing is removed, warm water being employed to remove the old dressing. The inflammatory symptoms, pain and swelling will soon recede and the nodules will become smaller or disappear altogether. In some cases the patient could resume his work in 5 or 6 days.

The Arthigon treatment amounts to an active immunization with a dead culture of gonococci. Arthigon is a gonococcus vaccine, each Cc. of which contains 20 million germs. Excellent results have been obtained by the Arthigon treatment alone.

The author started to use this preparation at the very beginning, no matter whether the inflammation was at its height or was receding. An increase of the acuteness of the symptoms was never seen. The initial dose was from 0.5 Cc. injected intramuscularly with sterile syringe into Dubot's line. Local disturbance did not occur. On the third day, 1.0 Cc. was injected even if the first injection caused a rise of temperature. The dose was finally increased to 1.5 and 2.0 Cc. and altogether 6 or 7 injections were given. In 25 cases treated in this way the results were all excellent.

With ice-bag, the pains disappeared rapidly, the inflammatory symptoms receded and the infiltration disappeared. The process rapidly healed in a short time without

leaving induration. Exceptionally there was a slight hardening which was treated by daily injections of 2 Cc. of a 10 per cent solution of fibrolysin. It is absolutely necessary that the last remnants of the disease be eradicated for Boerman has proven that viable gonococci may remain behind in the nodules which may give rise to a reinfection of the urethra at any time.

When injecting the arthigon intramuscularly no attention was paid to the presence of temperature, since the reaction was always a gradual one and soon reached the normal.

Neisser has recently suggested the use of arthigon by the intravenous route. Should the temperature exceed 38° C. it is best to wait, since there may be a rise up to 41° C. or even 41.4° C. with chill, after the injection. In all cases the pulse and general condition remained satisfactory, yet it is always best not to provoke such severe reactions.

One case deserves mention:

Patient, 22 years old, robust, no previous illness, internal organs normal. Gonorrhea since 3 months. Admitted owing to a prostatic abscess. Daily temperature fluctuated between 38.2 and 38.6° C. Abundant discharge from the urethra with many gonococci. On rectal examination a very tender swelling of the right half of the prostate was found without fluctuation. External palpation also very tender. Urinary disturbances. Treatment: Rest in bed, ice-bag, diet, attention to the bowels, 5 per cent. ichthyol suppositories and salol pills. On the third day, despite temperature, 0.1 Cc. arthigon intravenously; no pronounced reaction.

On the fifth day, 0.3 Cc. arthigon intravenously at 11 A. M. At 1 o'clock a chill with steady rise of temperature to 41.4° C. at 10 P. M. Pulse strong, only slightly accelerated. By 11 o'clock the temperature had fallen to 36.6° C. After this, the temperature did not rise above 36.8° C.

After two days palpation almost free from pain. The patient felt well and left the hospital by request. There still was considerable secretion from the urethra with many gonococci. After eight days, during which the patient was traveling, there was no longer any pain on palpation, the prostate was almost normal and firm, but discharge with numerous gonococci was still present.

Since the effect of each method of treatment was thus apparent, it was but natural to combine both specifics just as in syphilis, salvarsan and mercury are combined. The following was the procedure generally followed:

The patient is ordered to bed and ichthyol and ice-bag applied as stated above. The use of the ice-bag is frequently condemned as it is supposed to favor the formation of nodules difficult of absorption, but any untoward effects caused by the ice are counterbalanced by the use of arthigon, ichthyol and fibrolysin.

On the following day the intravenous in-

jections of arthigon are begun provided the temperature does not exceed 38° C. If higher, the arthigon is used intramuscularly in the usual way, until the temperature permits the intravenous application. The initial dose is 0.1 Cc. and this is increased to 0.4 within seven days, in four doses.

In about 20 cases the pain and swelling rapidly disappeared and the infiltration soon became absorbed. After one or two days the patients could leave bed. All cases treated with arthigon and ichthyol could take up their vocations after 3 to 4 days and the treatment could be finished in the clinic where a complete cure was achieved.

The combined arthigon-ichthyol treatment must therefore be regarded as the most rapid and efficient treatment of epididymitis.

ERYSIPELAS

Clinical observations on 800 cases of erysipelas in Bellevue Hospital, including 95 treated by bacterial vaccine and 20 by phylacogen, are reported by Seward Erdman, of New York. So many claims have been made for different methods of treatment that he thought it well to study the average febrile period of the different forms of erysipelas as a background to contrast the effects of different methods. Uncomplicated facial cases (500) had an average duration of 6.77 days; general body and migration cases (56) averaged 14.44 days; leg cases (33) 10.88 days; complicated cases (211) averaged about two weeks of febrile duration. The fever in facial cases was usually high and remarkably remittent and irregular terminating by lysis. Eight cases of afebrile facial erysipelas were noted. Males were affected in the ratio of two to one of females. The disease occurs usually in the colder and spring months, infection coming often from an abrasion of the nasal mucosa in coryza. These comprise nearly seven-eighths of nearly the whole number of cases. In the others the affection came from various traumatic causes. The onset was generally with chills and fever, headache and general malaise preceding the eruption from twelve to twenty-four hours. The erysipelas spreads easily in all directions and usually irregularly with tongue-like projections. The complications mentioned are abscess, septicemia, pneumonia and nephritis as most common. Relapses and recurrences were common; several patients had repeated attacks. According to Erdman's observations erysipelas does not

seem to be more easily communicable than ordinary streptococcus or staphylococcus infection. It is undoubtedly inoculable but with ordinary aseptic precautions it should not often happen. In the 800 cases there were only four that suggested contagion. Mothers frequently nurse their infants during an attack and they are not infected. Among all the doctors, interns, nurses and visitors he could report but one case—in an attendant who contracted it after a cold in the head. The mortality in the 800 cases was 93 or 11.025 per cent. It was greater in males than females which was attributed to their more common alcoholic addiction, and the highest in infants to whom it was generally of the body or migratory form. The diagnosis of facial erysipelas is generally easy but elsewhere it is much more difficult and it is often impossible to diagnose erysipelas of the leg from cellulitis or lymphangitis. Erdman does not recommend the use of iron or quinine from his experience. The internal medication given was mainly stimulants, sedatives or cathartics as needed. The routine treatment for facial erysipelas was the use of continually wet cold compresses using a boric acid solution. In leg and arm cases wet dressings of boric acid or aluminum acetate. Carbolic acid or mercuric chloride solutions are dangerous. The experience with vaccine treatment did not show any great advantages of this method. The mortality was nearly the same and the duration of fever slightly greater.—*Jour. A. M. A.*, Dec. 6, 1913.

IODINE IN DIPHTHERIA

It is well known that it is often very difficult to remove diphtheria bacilli from the throat, though the patient may have completely recovered or may merely have come into contact with diphtheria patients without having himself contracted the disease. For such cases, Strauch highly recommends the systematic application of tincture of iodine. In 50 cases of true diphtheria, twenty were free from bacilli after applications made on three successive days. In most cases treated in the usual way, the bacilli disappear after 2 to 3 weeks while in others they remain for months. For them, the application of iodine is indicated. There are no local or general bad after-effects, but if complications are present, the applications should be postponed.—*Therap. d. Gegenwart*, Sept. 1913.

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LECITHIN IN HEART AFFECTIONS

In order to improve the conditions of nutrition and strength in heart affections without causing overfeeding, Mendelsohn recommends the systematic and continuous administration of lecithin, as well as the usual treatment. In an example quoted by the author it is seen that lecithin may occasionally be of service where cardiac and circulatory treatment have failed. Thus in an old man he had used digitalis and sparteine without benefit, while injections of $1\frac{1}{2}$ grains of lecithin administered on alternate days maintained the cardiac activity for months. Like Nerking, Mendelsohn emphasizes the necessity of using pure lecithin in order to obtain good results. He often observed that pure lecithin was very beneficial in cardiac affections, while food containing lecithin was without effect, even on resorting to overfeeding. The author's observation that hen's eggs cannot serve as a substitute for pure lecithin is of interest. Thus a neurasthenic took six to twelve eggs a day for months without benefit, while doses of 4 grains of pure lecithin soon brought about an improvement. The author considers this to be due to the fact that pure lecithin is not attacked by gastric and pancreatic secretions and is thus enabled to act better.—E. Mercks Ann. Report, vol. xxvi.

ARSENIO AND PANCREATIN IN PERNICIOUS ANEMIA

L. Brieger recalls a publication by himself and Trebing, in which they set out that the high antitryptic titre found in persons suffering from carcinoma could be reduced to the normal level by an internal medication with pancreatin. They further found that other carcinomatous patients resisted this action of the ferment. The indications of the previous observations were interpreted as suggesting that pancreatin might when combined with other medicaments prove of some therapeutic use in certain diseases. For example, they suggest the treatment of tuberculosis with tuberculin and pancreatin. Brieger now returns to this idea and states that after a high antitryptic titre was found in the blood of persons suffering from pernicious anaemia, an attempt was made to treat this disease with

arsenic combined with pancreatin. The result was beneficial, although only temporary. He gives the clinical histories of three cases. Two of the patients died at a later date, after they had been discharged improved from hospital. The third patient was treated three years ago and is still under observation as an out-patient. She has remained well up to the present. The treatment has therefore to be repeated from time to time, a careful control being exercised in the interval. The high titre has been reduced to normal limits. Brieger repeats that this does not mean cure, since this reduction of the titre was attained in the case of several cancer patients, and was accompanied by a constitutional improvement, but the treatment "naturally did not exercise any influence on the carcinomatous process nor did it arrest the ultimate termination of the disease." He raises the question whether the pancreatin medication may not affect a catalytic action on the diseased tissues.—Deutsch. Med. Woch., Nov. 14, 1912.

THE VACCINE TREATMENT OF GONORRHEA

K. Klause lays down the following rules for the vaccine treatment of gonorrhoea: Vaccination is to be performed with a fresh vaccine, and a vaccine older than three months should never be employed. The proper administration is in intervals of 4 to 5 days, the initial dose being 5 to 10 million and the maximum dose 100 to 200 million. Slight fever is no contra-indication. The vaccine does not possess any prophylactic value nor any diagnostic value for no matter how applied, there may be local or general reaction even in patients not suffering from gonorrhoea or no reaction in patients with gonorrhoea. The therapeutic value is most pronounced in epididymitis and gonorrhoeic arthritis, less pronounced in gonorrhoeic adnexal or cervical disease and in parenchymatous prostatitis. The results are doubtful in funiculitis and absent altogether in urethritis, catarrhal prostatitis and proctitis. Relatively recent cases where no connective tissue proliferation has taken place are usually more amenable to treatment. Permanent damage from vaccination is not to be feared and untoward symp-

toms, if they occur, are slight and transient. The vaccine should be tried in every case where a closed focus is suspected.—Berl. klin. Woch., Sept. 29, 1913.

CHARCOAL IN PHOSPHORUS AND MERCURY POISONING

In view of the many cases of mercury bichloride poisoning recently reported the results obtained by Adler (Wiener klin. Wochenschrift, 1912, No. 21) with animal charcoal will prove of interest and perhaps of some value. In a case of phosphorus poisoning, in which a large amount of phosphorus had been present in the intestinal tract for twenty hours, animal charcoal was administered by mouth and rectum. Severe vomiting and jaundice ensued but the patient recovered. In another patient, who came under treatment three hours after the ingestion of phosphorus, no toxic symptoms occurred, although a considerable amount of the poison had been consumed. Treatment consisted in gastric lavage with permanganate solution, and administration of repeated doses of 75 grains of animal charcoal and rectal irrigation with a suspension of one-half ounce of charcoal in 35 pints of water.

In a case of poisoning by three mercury bichloride tablets, besides the exhibition of milk and fluid egg albumin, and in addition to gastric and intestinal irrigation, one-third ounce of animal charcoal was administered. The patient was discharged after five days. Similar results were obtained in poisoning with phloroglucin and Schweinfurth green.

MERCURIC CYANIDE IN PUERPERAL INFECTIONS AND IN SYPHILIS

For puerperal infections Souligoux employs intramuscular injections of mercuric cyanide. Without curetting or other local measures he injects a solution of 0.01 Gm. of mercuric cyanide and 0.01 Gm. of stovaine in 1 Cc. of water daily for a week. If toxic symptoms occur, the injections are discontinued; if the result is not satisfactory, the injections are repeated. As he obtained an immediate improvement of the general health in a large number of cases by this method, he considers its clinical value to be established.

Mariotti employs mercuric cyanide for the abortive cure of syphilis in the first stage of the disease. Besides rendering the primary affections and the enlarged inguinal glands hyperemic by means of Klapp's suction apparatus, he injects 1 Cc. of a 0.5 per cent solution of mercuric cy-

nide into the inguinal region every day. Six injections are given a week, and 30 to 50 injections in all. Besides this, 1 Cc. of a 0.25 per cent solution is injected subcutaneously in the neighborhood of the sclerosis and into the skin of the penis daily, the area of injection being slightly massaged and 30 per cent calomel ointment applied. Twelve to fourteen injections of 0.25 per cent solution usually suffice, but a larger number may be given. By means of this treatment Mariotti claims to have suppressed the secondary symptoms and to have prevented Wassermann's reaction becoming positive.

Fernet and Ettinger combine the injection of mercury with salvarsan, for experience has shown that mercurial treatment is assisted by arsenic. By the simultaneous use of mercuric cyanide, smaller doses of salvarsan suffice and the dangers caused by too large doses of the latter are avoided. In recent cases without secondary symptoms, and with a negative Wassermann reaction, the authors injected 0.3 to 0.4 Gm. of salvarsan twice within a week. This treatment was supplemented by a series of mercuric cyanide injections, consisting of 10 to 12 intravenous injections of 0.01 to 0.015 Gm. of mercuric cyanide given at intervals of two days. In the presence of secondary symptoms 12 to 15 injections were given. The secondary effects of salvarsan and mercuric cyanide were insignificant, while the result of the combined treatment was very encouraging. To prevent recurrences, the authors recommended injections of yellow mercurous iodide at the conclusion of treatment, even when the Wassermann test yields a negative result. E. Merck's Ann. Report, vol. xxvi.

SODIUM CACODYLATE IN KERATO-IRITIS DUE TO LIME BURN

F. Allport and A. Rochester, of Chicago, report a case of kerato-iritis due to lime burn and which resulted in a complete recovery following treatment with hypodermic injections of sodium cacodylate. The patient, aged 21, denied any history of syphilis. A week before he was seen by the authors he had been struck in the left eye by particles of lime. He immediately placed himself under the care of a physician and had been using hot fomentations, atropine and antiseptic eye-washes. There was a constant dull pain, much photophobia, all the symptoms of an acute iritis, and, in addition the cornea was completely opaque.

For two weeks the authors continued the treatment much the same as before, except

that in addition powdered dionin was used daily. By this time the iritis was somewhat improved, but the cornea remained almost as opaque as when first seen. The patient was then given an intra-muscular injection of 7 grains of sodium cacodylate. This injection was repeated two days later and then six injections of $3\frac{1}{2}$ grains each were given every third day. The regular treatment was continued during this period. Two or three days after the first injection was given the cornea gradually began to clear and continued to do so slowly and steadily until finally the whole cornea became absolutely transparent. With the refractive error corrected, he obtained 20/20 vision.

The authors point out that opacities due to lime burns are not simply scars, but that they contain deposits of calcium carbonate. It might be suggested, therefore, that the sodium cacodylate, finding its way from the blood into the lymph channels and finally into the cornea, brings about some chemical reaction with the deposits of calcium carbonate, rendering them more soluble and more readily removed. However, that is only speculation. The important point and probable fact is that, under the stereotyped treatment, the patient would not have the clear cornea which he possesses to-day, and that his vision would be much lower.—*Ophthalmic Record*, Sept., 1913.

TREATMENT OF NEURASTHENIA

Neurasthenia, according to H. T. Pershing of Denver, "is a functional nervous disorder, not dependent on organic disease of any kind, not amounting to insanity, not hysteria; manifested by irritability, early onset of mental fatigue and a great variety of unpleasant and, to the patient, alarming sensations, chiefly in the head, but also in various other parts of the body." As regards its etiology the idea of fatigue, especially mental fatigue, is forced on us, but a critical examination of the facts shows that this cannot be the chief factor in the causation. Under favorable circumstances the neurasthenic can often do a large amount of bodily or mental work to advantage as is shown by Dr. Hall's work-cure at Marblehead, Mass. Patients are often worse on Sundays or other holidays and are usually worse in the morning than in the evening. The essential fact is that they are especially subject to emotional disturbances, not that these are so overintense but they are constantly recurring. The condition is like anaphylaxis. The part of the cortex where emotional processes start has

become sensitized so as to react with less cause than in the normal brain. It may be described in the technical language of physiology as a lowering of the emotional threshold. Pershing says that the James-Lange theory of emotions is a true theory for the neurologist though it may be expected to by the pure psychologist. According to it every emotion consists of the following processes in a uniform order. 1. The exciting perception or idea. 2. An action of the brain thus excited sending efferent nerve currents to the various bodily organs and causing a change in their action. 3. The return of sensory nerve currents from the disturbed organ to the sensory areas of the cortex, causing a change in sensations and a consequent perception of the bodily disturbance. He illustrates this by the case of a person startled by a sudden noise and the movements which everyone has experienced under such circumstances. The disproportion of effect to apparent cause is explained by the fact that the emotions are largely identical with the preservative and protective instincts which have an inherited predeveloped mechanism, useful in ordinary life, but harmful when too frequently used, as is the case in neurasthenics. Psychasthenia is also a lowering of the emotional threshold but differs from ordinary neurasthenia in its exciting causes. In psychasthenia the exciting cause of disturbance is merely the mental representation of a cause for emotion not actually existing, and with normal persons the emotional reaction is lessened by the knowledge that the cause is not real. The theatregoer and the novel-reader may shed real tears or clench his fists, but he restrains himself, but the psychasthenic's emotional centers are so oversensitive that the mere imagination arouses horror, or the suggestion may bring about the act. Treatment must be directed to curing the instability by explanation, suggestion, persuasion, teaching the patient to better guide his mental processes and train his body to avoid injurious mental and emotional reactions. Much can be done by the physician in displacing false and depressing ideas by those that are encouraging and tranquilizing. Everything that can disturb or excite the patient's imaginations or fears should be avoided and physicians should minimize these. Sexual troubles should be learned so as to be able to remove them and the fear of insanity be uncovered and lightly explained. The physical examination should

be thorough so that the patient can be honestly assured of the absence of organic disease and obtain confidence in his doctor. He should be taught to avoid controversies, conversations about health or disease and medical writings, good or bad, and be educated to physical control. The substitution of full regular breathing for irregular gasps is a useful exercise when emotionally disturbed. It is by this process we overcome the habit of crying in children, cure stage fright, and are able to face trying situations. When it becomes habitual even the violent paroxysms of hysteria can be overcome. Pershing thinks tobacco and coffee may do some good. Alcohol would be a boon if its bad effects were not so overcoming and sure. There is prospect of the usefulness or organotherapy though thus far it has been uncertain. The one remedy that is specific is opium, and used with due precautions it can be kept up without necessarily involving the formation of the habit. Other remedies should be combined with it, such as strychnine and laxatives, which will make trouble if the patient exceeds prescribed doses. It should be entirely under the control of the physician, allowing the patient no discretion, and the dose need never be large, rarely exceeding one-third grain of the extract.—*Jour. A. M. A.*, Nov. 8, 1913.

STERILE GLYCERIN AS A DRESSING FOR WOUNDS

Hardouin in the "Province Médical" for Aug. 2, 1913, recommends the employment of pure, sterile glycerin on ordinary sterile cotton compresses in the treatment of wounds. The gauze should be thoroughly soaked or impregnated with the glycerin before applying, in order to prevent adherence to the raw surfaces. The principal advantage claimed for these applications is, that they suppress almost completely the pain throughout the stage of dressing, even in conditions generally the most painful, such as appendicitis or osteomyelitis.

Glycerin is hygroscopic and favors osmosis of the liquids from the depths of the wound toward the compresses and the exterior, thus having a great advantage over oil dressings, which prevent the compresses from absorbing the discharges, prevent drainage of the wound liquids to the exterior, and therefore close, instead of draining, the cavity. When absorbed, glycerin is not harmful, nor does it cause any discomfort, provided it is neutral in reac-

tion, giving merely a brief sensation of warmth, which is not disagreeable.

Thanks to its absorptive power, the glycerin cleanses quickly serous wounds, and, being free from pain, the compresses may be carried down to the bottom of troublesome wounds, in order to cleanse and drain them. The compresses can be removed readily from the deepest wounds, and that without pain, leaving behind a raw surface, not bloody, of good appearance, and to which there is no adherence whatever. Furthermore, glycerin, when used near the peritoneum and intestines, acts as a laxative, which is also an advantage.

The advantages claimed for the glycerin dressing are summed up by Hardouin as follows: It is easy to prepare; inexpensive; painless; drains and cleanses thoroughly; prevents remote secondary infection; is laxative in certain conditions; is entirely inoffensive.—*Amer. Jour. Clin. Med.*, Nov. 1913.

ARSENIC IN SKIN DISEASES

Saalfeld of Berlin asserts that while the advances in dermatology have been pretty widely recognized by the general medical profession there are still a large number of physicians who consider skin diseases and arsenic as synonymous terms. Arsenic is considered a universal cure in dermatology, of value in the most varied dermatoses, "from A to Z, from acne to zoster." The writer's object is to point out to the general practitioner how false this conception is.

Two categories of skin affections must be considered, first those in which arsenic is of no value, and secondly, those in which it works positive harm. In the latter class belong the dermatoses which are etiologically dependent on disturbances in the stomach and intestines. Many eczemas are to be included in this class, as well as the erythemas caused by food. The second category of skin affections, in which arsenic, although doing no harm, is of no avail, are the dermatoses whose cause lies in a toxic agent acting from without, such as pediculosis, scabies, and the affections caused by the various vegetable parasites.

The number of cases in which arsenic has a specific action, analogous to that of mercury in syphilis, is not large. It is regarded by some as of great value in certain of the less common dermatoses, such as *licen planus* and *licen acuminatus*. It has also had marked good results in the *licen chronicus simplex* of Vidal. Other affections in

which the writer has found the drug of value are pityriasis rubra pilaris and verrucae planae juveniles. He asserts that it also has a favorable influence on pityriasis rosea. In the large group of pemphigus affections, including dermatitis herpetiformis, he considers arsenic often of value, but far from specific. In leukemia, pseudo-leukemia, cutaneous sarcoma, and mycosis fungoides he considers that the drug has a certain place.

As to the value of arsenic in psoriasis, the authorities are not in accord. Those who regard this disease as caused by a parasite, consider the drug of no value. The writer claims to have seen great benefit from it in the early stages of the affection and cannot agree with those who would forbid its use in fresh hyperemic patches of the disease. In such cases he warns against the use of an energetic external treatment.

As to the most frequent of all skin affections, eczema, arsenic is indicated in those cases in which it may be assumed that there is a constitutional disturbance, when there may be large areas of lichenification, often having begun in early childhood. In some cases of seborrhea of the head accompanied by acne, arsenic may be of service. In the tuberculides and in prurigo it is also indicated.

The injurious effects of arsenic are not infrequently seen by the expert in the shape of pigmentations, keratoses and zoster. Disturbance of the digestion, dryness of the throat, irritation of the conjunctivae are more commonly met with. With regard to preparations, acidum arsenicosum is sometimes tolerated when Fowler's solution is not. All arsenical preparations should be given after eating. As to subcutaneous or intramuscular injections, the writer has found sodium cacodylate a valuable preparation given in a 5 per cent. sterilized solution.—*Boston Med. & Surg. Jour.* May 1, 1913.

ACID INTOXICATION IN CHILDREN

T. C. McCleave, of Berkeley, Cal., says that we very frequently see in children between 2 and 10 years old a symptom-complex in which acidosis is a marked and constant characteristic. The attacks are commonly recurrent and may appear suddenly or be preceded by a loss of appetite and sort of livid coloring around the mouth and under the eyes. Intense nervousness may be exhibited in the beginning, though the child later becomes apathetic and may even

be comatose. In any but mild cases its appearance is that of serious disease. There is always fever and a soft, rapid, irregular pulse. Vomiting is the rule and the urine may contain albumin, casts and blood. Prostration in severe cases is marked and sometimes a fatal termination seems imminent, but deaths from this cause are very rare. The duration of the attack may be from one day to a week or a little more. The diagnosis of the disorder if one is familiar with it is usually not difficult. Lack of history of dietetic errors may exclude indigestion, and the early resemblance to brain or kidney disease is less misleading as the attack progresses and the characteristic urinary findings are observed. The etiology and pathology of the condition are obscure, but summing up all the facts McCleave says that in children that suffer from periodic attacks of acid intoxication or recurrent vomiting there is probably almost always some chronic forms of infection, adenoids, diseased tonsils, inflamed bowels or appendix, etc., the toxins from which being constantly absorbed act primarily on the liver and by their cumulative effects or disturbances of the metabolism by error of diet, excitement, fatigue or other cause, bring on the attacks, the severity of which is perhaps due to the lesser supply of glycogen in children. Impending attacks, if recognized, may be often avoided by prompt catharsis and a free use of sodium bicarbonate. The author recommends the administration of sugar in the form of dextrose to meet the carbohydrate lack. Convalescence is frequently very rapid, the child showing in a few days no effects of what seemed to be a serious illness.—*Jour. A. M. A.*, Nov. 15, 1913.

THORIUM X IN INTERNAL AFFECTIONS

Thorium X was generally given by O. Meseth in the form of intragluteal injections and internally, twice a week. In three cases of myelogenous leukemia, there was subjective improvement in all, while the blood improved in only one. It is possible that the results will be more encouraging when other treatment, particularly the application of the X-rays has preceded the administration of the radio-active substances. Less encouraging results were obtained in lymphatic leukemia for though the white cells diminished in number, there was also a reduction of the hemoglobin and the reds and the subjective condition remained the same. There was slight improvement in one case of splenic anemia

and in a number of cases of secondary anemia where the primary condition was corrected. The whites were never reduced to any marked degree and the hemoglobin rose much more slowly than the number of the reds. In two cases of pernicious anemia, large doses decidedly aggravated the condition. In obesity, the body-weight was hardly influenced but an attack of gout, from which the patient also suffered, was provoked. In one case of lympho-sarcoma, the glandular metastases were only slightly affected but the skin metastases became more flat. After-effects were here very pronounced (diarrhea, lassitude, vertigo and anorexia). No results were seen in multiple lymphomata while two cases of focal spinal disease showed some improvement. In one case of arteriosclerosis, the blood-pressure could not be reduced by the thorium to any appreciable extent. The following may be said of other affections. Sciatica, good results, lancinating pains of tabes, no results; chronic rheumatic arthritis of the exudative and dry type, favorable results. It is best always to begin with small doses and to increase gradually except in leukemia, where large doses may be used from the beginning. In the articular affections, the analgesic effect is the most pronounced. It is difficult to say if the internal or the intramuscular administration is to be preferred, since good results have been seen after both. The after-effects in general were slight but it is best to count the leucocytes since a decided leukopenia would call for discontinuance of treatment. The best results were obtained in anemia exclusive of the pernicious type, sciatica and in secondary, chronic joint affections.—Muench, Med. Woch., Sept. 23, 1913.

HYDROCHLORIC ACID AND SODIUM CACODYLATE IN PERNICIOUS ANEMIA

J. A. Stealy, in cases of pernicious anemia in which there is diminished gastric acidity, employs hydrochloric acid and pepsin. Ten to fifteen drops of the acid are given in mucilage water a few minutes after each meal, and the dose repeated in thirty minutes. For the preparation of the mucilage water, which is employed to prevent injury to the gastric mucosa by the acid, one ounce of pulverized acacia to one quart of water is used. One-half glassful of the mucilage water is used to each dose of the acid.

The author points out that it is important to carefully regulate the dose of the acid,

for if too little is given the patient will not reap the benefit of the treatment, while if too much is given he will not retain the acid. In cases of complete achlorhydria, twenty drops of the strong acid may be given, generally in two-thirds of a glassful of the mucilage water, while in some cases where the hypochlorhydria is slight but five drops may be needed. The dose should be changed in each individual case from time to time, less of the acid being required as the patient improves and the gastric production of hydrochloric acid increases. It is unnecessary to make periodic examinations of the gastric contents for the purpose of regulating the dose. One can tell from the patient's symptoms whether or not the dose is suitable. Excessive burning in the stomach or emesis after taking the dose is proof of the production of too great an acidity.

In addition to the acid treatment, the author administers sodium cacodylate daily by deep intra-muscular injection, commencing with three-quarter grain doses, finally to reach a six grain dose, and then gradually diminishing in frequency to every other day, every third day, etc. The diet is made a generous one, the various articles of food being prepared and served in the most appetizing way; psychotherapy is practiced in the sense of giving verbal encouragement to the patient.—Lancet Clinic, Feb. 15, 1913.

TREATMENT OF SUPPURATIVE NEPHRITIS

In the latest edition of their "Practice of Medicine," J. Tyson and M. H. Fussell, of Philadelphia, point out that while there is no curative treatment except by operation for suppurative nephritis, yet certain medicinal measures may prove of service though they be mainly palliative. For the relief of pain, the most frequent indication opium and its alkaloids are absolutely essential. Hypodermic injections of morphine in doses of from $\frac{1}{8}$ to $\frac{1}{3}$ grn. repeated, if necessary, are favorite and effectual methods of relieving the intense pain, which is often due, not so much to the inflammation as to the impacted calculus or other cause of obstruction. Suppositories of from $\frac{1}{2}$ to 2 grn. of the extract of opium may be substituted. As adjuvants may be mentioned hot fomentations and simple counter irritants.

The catarrhal process in the kidney, its pelvis and the ureter, and also in the bladder, call for diluents. The usual remedies are the balsams, benzoic acid, hexamethylenamine and salol. Of the first, sandalwood oil, given in 10 minim capsules three times

a day, is better borne by the stomach than copaiba. Benzoic acid will secure an acid reaction in the urine and is best given in capsules. For an adult 5 grn. four times daily is usually sufficient though larger doses may be given. Sodium benzoate may be used in 10 grn. doses, either alone or in conjunction with the sandal wood oil, the former before and the latter after a meal. To children smaller doses should be given, 1 grn three times a day, increasing the dose.

Hexamethylenamine (formin), the authors believe, is the best of the remedies named. It should be given in 5 grn. doses four times a day preferably on an empty stomach.

The inevitable tendency in these cases to run down in general health demands tonics such as quinine, iron, and strychnine, while milk and other nutritious articles of diet are always indicated. The authors also warn of the dangers to which the patient is subject from exposure, cold and dampness and which may be averted by suitable care and woolen clothing.

THEOPHYLLIN AS AN ACTIVE DIURETIC

According to the pharmacologic investigations of Schmiedeberg, theophyllin is 1.3 dimethylxanthin, and chemically is closely allied to caffeine and theobromine. It is one of the most active diuretics known, and already has been incorporated into the German Pharmacopœia. Theophyllin is especially indicated in heart disease with evidence of stasis, nephritis with general edema, ascites, exudative pleuritis, etc., and has often been reported effective in cases in which other diuretics have failed. The diuresis usually takes place in the first twenty-four hours. Comparatively small doses may cause increased flow of urine.

Minkowski (Ther. d. Gegenw., 1902, Nov.) stated that after a single dose of 0.4 Gm. (6 grains) of theophyllin, 7,600 Cc. (8 quarts) of urine was excreted in twenty-four hours. Other authors have reported quantities as high as 8,500 to 15,000 Cc. Theophyllin is reported not only to influence the excretion of urine more than the other diuretics, but also to bring about a greater excretion of salts than theobromine or caffeine. It can be given a long time without harm. With correct dosage and method of application, unpleasant by-effects have not been observed.

A further advantage is its inexpensive-ness—which is further emphasized by rea-

son of the fact that it can be given in small doses because of its powerful action.

It is recommended to begin with small doses and, where possible, in solution, and after meals. According to Romberg, begin with 0.1 gm. (1½ grains) of theophyllin twice daily. On second day, if action has not been sufficient, increase to 0.2 gm. (3 grains) twice daily, increasing gradually every second day until 3 grains is given three or four times daily.

In many cases the combination with digitalis is to be recommended. It is to be noted here that first the digitalis is given, and then the theophyllin after the digitalis action has set in.

SODIUM CITRATE IN DYSPEPSIA

Plicque in "Bulletin médicale" for May 31, 1913, states that sodium citrate appears to exert, in the treatment of dyspepsia, several beneficial actions. In the first place, it facilitates the digestion of milk when a milk diet is being given, preventing the formation of large, compact clots where the fluid is drunk too quickly or in excessive amounts at one time. Variot showed that many cases of infantile dyspepsia, such as occur so often in bottle fed infants, yield when a tablespoonful of the following solution is added to each four ounce (120 gramme) bottle of milk:

Sodii Citratisgrn. xxx
Aque Destillatæʒiii
Solve.

Again, sodium citrate acts as an alkali, and as such, becomes a soothing agent in cases of pyrosis, besides diminishing gaseous fermentation and even obviating the regurgitation of food.

Finally, sodium citrate, even in small doses, is a very good laxative. In combating constipation, so frequent among dyspeptics, it lessens autointoxication from intestinal fermentative processes and obviates the mechanical disturbances resulting from the accumulation of gases. In constipation associated with hepatic congestion, Huchard frequently advised its employment, along with sodium sulphate and bicarbonate:

Sodii Citratis
Sodii Bicarbonatis
Sodii Sulphatisāā ʒv

M. Sig.: One teaspoonful every morning in a hot infusion.

Even if given without the sodium sulphate, sodium citrate acts quite sufficiently as a laxative.—N. Y. Med. Jour., Nov. 8, 1913.

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EDITOR'S NOTES

Modern Treatment of Syphilis

After a suspicious intercourse or where an abortive treatment seems indicated, M. Joseph always recommends an intravenous salvarsan injection followed by a course of mercury. The blood must, of course, be controlled by the Wassermann test, but the results are frequently excellent. Usually first 0.3 Gm. neosalvarsan is given; then, at intervals of 8 or 10 days, 0.4 and 0.5 Gm. The mercurial preparation employed is the salicylate, by intramuscular injection. The patient may be pronounced cured if the sero-reaction done every three months for two years remains negative. If the patient comes to treatment later and the sero-reaction is already positive, it will be necessary to proceed more energetically. A concentrated neosalvarsan injection (0.3 Gm.) is then first given, followed on the day after by a series of ten inunctions of gray salve (3 Gm.). Then comes a second injection of neosalvarsan (0.4 Gm.), then another course of inunctions of 4 Gm. each. Finally neosalvarsan (0.5 Gm.) is injected, followed by ten inunctions of 5 Gm. each. The patient is then allowed to rest. The entire treatment should last two years and should consist of 4 to 6 of such combined courses. During the second course injections of insoluble mercury salts are preferred by the author ($\frac{1}{2}$ to 1 Cc. of a 10 per cent. mercury salicylate emulsion every

fifth to eighth day). In the intervals between the courses, potassium iodide is administered. In rare cases the iodide is not tolerated, when extract of belladonna may be added or one of the substitutes may be employed.

The consent to marriage is given if two years have elapsed since beginning of treatment and four sero-reactions have been negative during the following two years. It is advisable also to have the sero-reaction repeated several times after marriage.

Rarely the sero-reaction will be positive in the third or fourth year, despite active treatment. Here mercury seems to be more potent than salvarsan unless gummatous processes are present, when the combined treatment is again indicated. The doses should, however, be larger. A permanently positive Wassermann reaction is rare except in cases that have come to treatment too late.

Achylia Gastrica

By the term Achylia gastrica we generally mean that condition of the stomach where there is complete absence or pronounced reduction of hydrochloric acid, pepsin and rennin, so that the expressed stomach contents show no chymification. In addition, the stomach usually empties itself sooner than under normal conditions since the normal stimulus of the hydrochloric acid toward the pylorus is wanting. In such stomachs, even lavage will give evidence of little residue.

Achylia gastrica of this type is of varying etiology. It may be purely senile or may be the end stage of a chronic, atrophic gastritis. It usually accompanies carcinoma of the stomach, yet generally is not a precancerous condition, though great diagnostic skill may be necessary if the condition is discovered in individuals over 40 years of age. Other conditions often accompanied by achylia gastrica are pulmonary tuberculosis, chronic nephritis, diabetes and arteriosclerosis and frequently cholelithiasis and pancreatic disease, as well as intestinal catarrhs. Other authors speak of a concomitant splanchnoptosis, anema and chlorosis. The presence of achylia in pernicious anemia is quite characteristic, though it is not yet settled to-day which of the two conditions is the primary. Inasmuch as many cases of achylia gastrica do not and never suffer from anemia, it is more likely that the pernicious anemia is the primary condition and leads to atrophic changes in

the gastric as well as the intestinal mucous membrane.

In many cases the achylia is a primary condition which may be acquired or congenital. The etiology of the former is not known and in many cases there are few symptoms except diarrhea due to excessive intestinal putrefaction with secondary colitis. The congenital type is not rarely discovered during childhood and is accompanied by other signs of defective somatic development (weakness, anemia, anorexia, diarrhea, etc.). These patients remain delicate all their life and frequently the sisters and brothers suffer from the same complaints. A large number of neurasthenics belong to this type. The condition is merely one of the symptoms of a neuropathic constitution, though the gastro-intestinal symptoms frequently are very slight, and the patients may live to a good old age with comparatively little disturbance. Before an examination is made one may frequently suspect a hyperchlorhydria, yet the analysis of the stomach contents shows all the characteristics of an achylia. In a measure this type of the disease may be allied to orthostatic albuminuria which must also be regarded as an organ defect which probably never turns into a real chronic nephritis.

In rare cases achylia gastrica appears acutely in neurasthenics, to disappear again in 4 to 8 weeks. In all probability we are dealing here with a temporary exhaustion of the gastric mucous membrane due to a purely functional anomaly of the secretion without pathological basis.

The treatment of achylia gastrica demands first of all a carefully selected diet in purée form. In most cases the best results will be obtained with a purely vegetable diet. The total exclusion of meat for 4 to 6 weeks will reduce the intestinal putrefaction generally present by changing the intestinal flora. It is absolutely necessary that everything eaten should be as finely subdivided as possible. Cereals and vegetables should be given in the form of soups or mush and light desserts and fruit juices may be added. The vegetable purées can be prepared with butter, and stewed fruit as well as toast are generally permitted. Drinks that are not injurious include cocoa, tea, fruit juices and light red wine.

Only a small percentage of patients will tolerate milk or milk preparations, though small amounts of yoghurt in the form of milk or paste may be taken to advantage. The exclusion of meat is practically indi-

cated where there is reason to also suspect pancreatic achylia. With this complication it is also necessary to reduce the fats, so that the chief nourishment must be derived from carbohydrates. Jellies of veal or chicken are usually permitted and are well liked by these patients. Raw meat, smoked meat, spices, alcoholics, coffee, rye bread, salads and raw fruit must be permanently forbidden.

Gastric lavage, recommended by so many authors, is usually not necessary, as the motility of the stomach is generally not interfered with, but is usually increased.

The medicinal treatment calls for the administration of hydrochloric acid generally in large doses (25 to 30 drops of the dilute acid in a tumbler of water shortly before meals or the second half directly after meals).

Where there is pancreatic achylia as complication, pancreatic preparations such as pancreon or pancreatin may also be given. It is necessary to continue this treatment for years, with occasional pauses of four weeks.

The results of treatment in general are excellent and the attacks will recur with less frequency. In cases where the condition is chronic it will of course be necessary to persist in the treatment as in thyroid therapy. Nevertheless, a certain amount of permanent good will be accomplished.

Etiology and Treatment of Insipid Diabetes

In a number of cases of diabetes insipidus observed by J. Benario it seemed more than likely that the posterior lobe of the hypophysis was affected. The changes in this organ were usually due to specific processes of the surrounding tissues. The intermittent character of the symptoms was explained by the position of the gummatous processes and their reaction to antiluetic treatment. When the latter was without effect, the presence of sclerotic tissue was likely. Gummata occur frequently in the nasopharyngeal space and may readily extend to the sella turcica and the hypophysis. It is, therefore, important always to look for syphilis in every case of insipid diabetes.—Muench. Med. Woch., Aug. 12, 1913.

GRAVES'S DISEASE.—Among the occasional symptoms in this disease are glycosuria, orthostatic albuminuria, and movable kidney.

SCIATICA.—In obstinate cases a method to be remembered is fixation by means of a long splint, so as to secure immobilization both of the hip and the knee-joint.—Hospital.

Prescriptions

Facial Acne:

The following ointment is applied after the face has been thoroughly bathed with hot water and soap or with ichthyol soap. The ointment is kept on all night and washed off the following morning.

Camphoræ	grn. viij
Resorcini	ââ grn. viij
Sulphuris Præcip.	grn. xlv
Saponis Mollis	grn. xij
Cretæ Præp.	3jss
Petrolati	3ijss

Good results may also be obtained with sulphur lotions such as the following:

Sulphuris Præcip.	3v
Spt. Camphoræ	f. 3jss
Aquæ Rosæ	
Aquæ Destillatæ	ââ f. 3v
Glycerini	f. 5ijj

—Brocq.

Frost Bite:

Ichthyolis	f. 3ij
Ung. Plumbi	3iv
Pulv. Camphoræ	grn. xxx

M. f. ung.

Sig.: Apply freely once or twice daily; cover with cotton wool.

Acidosis:

Magnesium-Perhydrolis	grn. iv
Sodii Bicarbonatis	
Calcii Carbonatis	ââ grn. ij

D. tal. dos. No. xx.

Sig.: One such powder four to six times a day.

Influenza:

Euquininæ	grn. xv
Benzonaphtholis	grn. xv
Sodii Bicarbonatis	grn. viij
Mist. Acaciæ	f. 3x
Syr. Acaciæ	f. 3v

M. Sig.: Teaspoonful every two hours.

—Moncorvo.

Hemorrhage Following Abortion:

Hydrastinini Hydrochlor.	grn. j
Stypticini	grn. vj
Syr. Rubi Idæi.	f. 3ij
Elix. Simplicis	ad 3j

—Chase.

Nervous Eructation:

Ext. Physostigmatis	grn. j
Ext. Belladonnæ	grn. ij
Strychninæ Sulphatis	grn. ¼

M. Div. in pil. No. x.

Sig.: One pill three times a day.

X-Ray Burns:

Plumbi Oxidi	3j
Zinci Carbonatis	3ij
Glycerini	3j
Olei Olivæ	3ss
Adipis Benzoinati	3j

M. F. ung.

Sig.: Apply locally.

—W. B. Campbell.

Gastric Dilatation:

The following modification of Bouchard's solution has been found of value:

Creosoti	f. 3j
Tinct. Gentianæ	f. 3ij
Vini Xerici	f. 3x
Spt. Vini Gallici	f. 3ij

M. et Sig.: One hundred minims contain one minim of creosote.

—Tyson.

Enterocolitis:

Hydrargyri Chloridi Mitis.	
Pulv. Ipecac	
Pulv. Opii	ââ grn. ss
Cretæ Præparat.	grn. xx

M. div. in chart. No. xij.

Sig.: One powder every two or three hours to a child of one year.

—Hughes.

Acute Catarrhal Pharyngitis:

Potassii Chloratis	grn. xv
Olei Mentha Pip.	℥iij
Ext. Kramerizæ	grn. xv
Ext. Glycyrrhizæ	3jss

M. Ft. massa et div. in trochiscos No. xxx.

Codeinæ	grn. iij
Ext. Gambir	grn. xx
Ext. Glycyrrhizæ	3jss

M. Ft. massa et div. in trochiscos No. xx.

Cocaine Hydrochloridi	grn. 1/30
Antipyrinæ	grn. ij
Sacchari Lactis et Aquæ Dest.	q. s.

M. Ft. tales trochisci No. xx.

Ammonii Hydrochloridi	grn. xx
Pulv. Ipecacuanhæ	grn. j
Pulv. Capsici	grn. ¼
Ext. Glycyrrhizæ	3ij

M. Ft. massa et div. in trochiscos No. xx.

Of any of the foregoing tablets one may be dissolved in the mouth every two hours. The first formula is indicated in moderate pharyngeal inflammations, the second and third when pain and irritating cough are present, and the fourth when the pharynx is covered with thick and tenacious secretion.

—Wilcox.

Spasmodic Bronchitis:

Stramonii	
Potassii Nitratis	ââ 3j
Belladonnæ	
Cannabis Indicæ	ââ 3ss

Misce.: A tablespoonful of this powder may be burned upon a dish and the smoke inhaled.

Acute Bronchitis.

Apomorphinæ Hydrochloridi.	grn. ss
Sodii Bromidi	3ijj
Tinct. Sanguinarizæ	3ss
Syrupi Tolutani	3ij

M. Sig.: One teaspoonful in a wineglass of water every two hours.

Ammonii Chloridi	3ss
Ext. Glycyrrhizæ	3ss
Fl. Ext. Eucalypti.	3j
Syrupi Eriodictyon	ad 3iv

M. Sig.: One teaspoonful in water every four hours.

—Wilcox.

Of General Interest

The best thoughts from our contemporaries on general medical and allied subjects

Contagious Abortion in Man.—Veterinarians have long been familiar with the diseases of cattle known as contagious abortion and in 1896 the *Bacillus abortus* was discovered by Bang and Stribolt and identified as its cause. It has more recently been recognized as extremely prevalent and the complement deviation test has been used successfully in its diagnosis. It has been found also that cows which have been infected excrete these bacilli in their milk. It has been held, however, that man was immune to this organism and that therefore the infection of the milk was of no moment. Moreover, after a cow has aborted several times as a result of this infection she may become immune and thereafter appear to be in perfect health. E. C. Schroeder, in the course of an investigation on the relative value of raw, pasteurized and boiled cow's milk as a food for unweaned animals, found that the animals fed on boiled milk did better than those who got only raw milk. In autopsying some of these animals he found the lesions of infectious abortion and was led to conclude that perhaps it might be well to boil all cow's milk before feeding it to children. Larson and Sedgwick examined the blood of 425 children by means of the complement-fixation test, using the *Bacillus abortus* as antigen, and found it positive in 73 instances. The work was controlled in every possible way and agglutination and absorption tests were also made. It thus seems that man is susceptible to infection by this organism and Larson and Sedgwick observed cases of abortion in women who had come into contact with herds in which contagious abortion was prevalent and in whom syphilis and injuries could be excluded. This disease is said to be the most prevalent of all animal diseases and therefore the importance of determining man's susceptibility can hardly be exaggerated. It is to be hoped that the investigation along these lines will be continued.—Med. Record, Nov. 22, 1913.

Prenatal nutrition seems to be given more attention by students of comparative physiology and nutrition than by the medical profession. No doubt we all know in a general sort of way that the pregnant woman must be well fed or her offspring may suffer, but from the frequency with which a thin, underfed woman will give birth to a fat, healthy infant we have gained a general impression that the fetus is a parasite which steals all the nourishment it needs through the placenta irrespective of the state of the parent's tissues. Some lower animals apparently become big and fat for the purpose of furnishing material to be converted into the numerous ova later, but in other species the ova depend upon a constant supply of food. Experiments on pigs by John M. Evvard of the Iowa Agricultural Station show that the kind of food the mother eats during pregnancy exercises an appreciable influence on the number and size of the offspring, and perhaps the food taken before pregnancy may have some effect also in the way of preparing pabulum. The details do not concern us here, and the experiments are not sufficiently numerous to warrant exact conclusions as to the best articles for the practical purposes of the farmer, but the fact of human interest is the

effect of quality of food when the animals have taken all they desired of what was supplied. We usually say that during pregnancy an ordinary diet is needed, although there are extraordinary demands which must be satisfied. For instance, there is a greater need for calcium than the mother's own tissues will require, and the experiments show that the fetus may not be able to impoverish the mother's tissues to get calcium but that it simply fails to grow properly. The problem, then, for our dietitians is to determine what foods will supply the needed materials for this huge growing mass without harming the parent tissues. We may accept as fairly well established that the fetus cannot grow properly unless the needed nutriment is freely supplied to it, and that it cannot take out of the placental blood any substances which are not there. Above all else, it cannot steal all it needs from the placental tissues if the blood does not supply it. We are evidently in the field of very practical hygiene.—American Medicine.

Shock.—In a paper read before the International Congress of Medicine in London last August, G. W. Crile, Cleveland, defends his kinetic theory of shock, the principal point of which he sums up "that all forms of shock are caused by overstimulation and consequent exhaustion; that the brain-cells show physical changes corresponding to each stage of the cycle of shock, and that with each shock-producing agency studied there is shown in the brain-cells a hyperchromatic stage followed by a hypochromatic stage." The organs specially involved have the function of converting latent energy into kinetic energy in response to adaptive stimulation. These organs, the brain, thyroid, the adrenals and the muscles, Crile calls the kinetic system on account of this function but he considers in this paper only its exercise as a response to the need of self-preservation. In support of his views he gives the results of his investigations of the changes in the brain produced by traumatism, emotion and the injections of toxins and alien proteins and the results, he says, may be thus summarized: All the factors activating the kinetic system cause identical brain cell changes and increased epinephrin output. On the other hand, the anesthetics and narcotics increase neither of these outputs and he concludes that shock is a work exhaustion phenomenon. Hence it is clear that the exclusion of traumatic and emotional stimuli will wholly prevent the shock of surgical operations and his kinetic conception of shock has stood the crucial clinical test by making possible the shockless surgical operation and has given a plausible explanation for the cause and treatment of Graves disease. This is due, according to his theory, to overstrain on the thyroid as neurasthenia is due to overstrain in the brain and cardiovascular disease or glycosuria to exhaustion of the adrenals. A summary is given as follows: "There is a group of organs whose function is the conversion of potential into kinetic energy. These organs form a kinetic system. Among the organs forming this system are the brain, the thyroid, the adrenals, and the muscles. The kinetic system converts latent energy into motion or heat in response to adequate stimuli. If the stimuli are overwhelmingly intense, then the kinetic system, especially the brain, is exhausted, even permanently injured. This condition is acute shock. If the stimuli extend over a period of time and are not so intense as to cause an immediate breakdown or acute shock, their repe-

tion may cause the gradual exhaustion of the kinetic system—this condition may be called chronic shock. Either acute or chronic shock may be measurably controlled by weakening or breaking the kinetic chain at any point. This has already given us the shockless operation and it opens a possibility of controlling certain chronic diseases of that intensely kinetic organism, civilized man.”—*Jour. A. M. A.*, Dec. 6, 1913.

Transplantation of the Testicle—V. D. Lespinasse of Chicago, after briefly noticing the experimental work hitherto done, says that the size of the transplanted organ has a great deal to do with the success or failure of the operation. If the testicle is transplanted *in toto* it is almost certain to necrose, but if cut in thin slices and transplanted into a vascular bed it will grow and in frogs and chickens it will produce spermatozoa. In the higher animals this does not occur and the spermatogenic cells disappear in less than thirty days. The Sertoli cells and the Leydig cells, however, do not degenerate but seem to preserve their life and function. His own experimental results were confirmatory of these facts. Experimental transplantation with blood-vessel anastomosis is practically impossible though there is one human case on record where it was tried but atrophy followed. He reports a case of his own in which he transplanted slices of normal testicle into the scrotum and also into the rectus muscle with strikingly great improvement in sexual power and desire. “Transplantation of the testicle is a perfect operation in frogs and chickens; spermatogenesis and sexual characteristics are preserved. In guinea-pigs, rabbits and dogs the results are variable. Some experimenters report that there is no success at all; others assert that the interstitial cells remain and functionate. In the two human cases that have been tried to date, the one with the blood-vessel anastomosis was certainly a failure as far as spermatogenesis is concerned; but the interstitial cells may be and probably are present. In my own case the result clinically has been absolutely perfect. The man has regained his sexual powers completely, both as to desire and as to ability to perform. Furthermore, these powers have remained present for two years.”—*Jour. A. M. A.*, Nov. 22, 1913.

Accidental Tattooing of the Cornea by Lead from a Copying Pencil.—S. H. Brown writes of a schoolboy about eleven years of age, who, in a spirit of mischief tried to write upon another boy's collar with a so-called copying pencil. The other boy turned quickly and the first boy received the point of the pencil in the cornea of the right eye. A small abrasion was caused, which developed into an ulcer in a day or two, and from this ulcer an area about one-eighth of an inch extended, colored a deep purple or violet. The rest of the eye was perfectly normal, as was the other eye. Four days later the discoloration entirely disappeared and the corneal epithelium reformed shortly afterward. The treatment consisted of the instillation of atropin and boric acid solutions.

Two other cases of a somewhat similar nature are reported. Here the patients put the trimmings of the pencil in the conjunctival cul-de-sac, with the result that the entire conjunctiva, palpebral and ocular, was stained a violet color. In both cases the pigment staining disappeared spontaneously.

The author concludes as follows: “The feature of interest in connection with all three cases is the fact that the lymphatic system was able to dispose of these pigments so readily. These pencils are said to be indelible, and if such were the case the pigmentation should have been permanent. The writer several years ago reported a case of tattooing of the arm which had lasted from boyhood in a man upwards of forty-five years of age, in which after a severe attack of eczema on the site of the tattooing recovery was followed by the entire disappearance of the tattooed marks. This would indicate also great activity on the part of the lymphatic system. The irritation of the foreign bodies in the case of the ocular cases was sufficient to stimulate the lymphatics of the eye to the full performance of their vital functions, and doubtless are acting in the same manner toward innumerable inappreciable foreign substances as well as biologic preparations.”—*Ophthalmology*, April, 1913.

Parenteral Versus Oral Nutrition.—Scarcely ten years have elapsed since Oppenheimer proposed the word “parenteral” to express a mode of introducing foodstuffs into the body by some path other than *per os*. Parenteral nutrition has thus become contrasted with oral feeding, and the new term has already found a wide acceptance. The possibilities and problems of furnishing food to the organism, subcutaneously, intravenously, intraperitoneally, or even intramuscularly, have been the subject of discussion, particularly with reference to conditions of a pathologic nature when the usual practice of feeding by way of the mouth has to be abandoned for some reason or other. The result of most of the work in this field has been to demonstrate the futility of attempting to furnish food to the cells of the body in any form other than that in which it is usually prepared by the digestive processes. Paradoxical as it may sound, most of the ordinary nutrients behave like poisons in the body when they are introduced as such parenterally and meet the tissue of the individual in their native form. Few carbohydrates can be injected directly, that is, parenterally, and become utilized in any direct manner. Cane-sugar, for example—one of the commonest of dietary ingredients—is managed like a foreign substance whenever it reaches the blood-stream in its original chemical form. The kidneys quickly eliminate it in good measure. Appropriately emulsified fats may experience a somewhat better fate, though they tend to remain deposited a long time at the site of their parenteral introduction, unless it be directly into the swiftly moving blood-stream. For proteins the practical possibilities of parenteral administration have been eliminated almost entirely. With the danger of death by anaphylactic shock ever present, few physicians would venture to furnish unaltered proteins to patients by a parenteral route. The hope of the future in the direction of parenteral nutrition lies in devising satisfactory practical schemes for employing not the dangerous native proteins, fats and carbohydrates, but rather such digestive representatives thereof as are normally prepared out of our foodstuffs in the alimentary processes and are furnished for absorption. As we have remarked on previous occasions, there is an excellent opportunity for useful work in this direction to supplant oral nutrition whenever for the time being it becomes a practical impossibility.—*Jour. A. M. A.*

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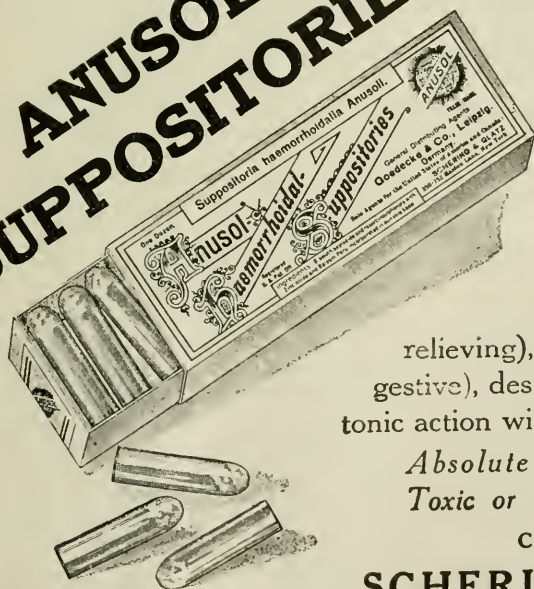


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DIPLOMACY IN THE BARBER SHOP.—One must be a genius to be a successful barber. One is reminded of the tonsorial artist who operated in the same village for fifty years and never made a mistake. In his early days a handsome boy got into his chair.

"Shave, sir?" asked the barber.

"You flatter me," laughed the youth. "You flatter me. No, I can only use a hair cut."

Years passed. In fact, thirty years did it. The same man came to the same barber.

"Hair cut, sir?" asked the barber.

"You flatter me!" sighed the man. "No—only a shave."

THE INVENTION OF SPECTACLES.—Oliver states that there is ample evidence to show that bi-convex lenses were used by the ancients as burning glasses. Pliny relates that glass balls filled with water were used by physicians for burning, and were to be bought from medicine dealers, and, perhaps, formed part of the armamentarium of the practitioner. That glasses were invented at the end of the thirteenth century in Italy is abundantly shown by the great majority of contributors to the history of this subject, and either by Armati and Spina together or independently of each other. At the same time in Germany and Flanders old people were using glasses. The first medical man to mention glasses was Bernard Fordon, educated at Salerno, and professor in Montpellier. He said that they were not necessary, thanks to his remedies for eye complaints, which so excelled that they made those whose sight was failing able to read small print without the use of glasses. Guy de Chauliac, body physician to Popes Clement VI, Innocent VI and Urban V, also lauded his own eye lotion, but added: "If this doesn't relieve you, then try eye-glasses." No one at this time knew anything at all about the refraction of light, hence the senseless talk about the various remedies. The laws of optics, relating to glass lenses, have been known only since the time of Maurolycus (A. D. 1494-1575) and the immortal Kepler (A. D. 1571-1630). The physician who first ordered glasses in a professional capacity was one Montanus, a teacher in Padua. He ordered protecting glasses, reading glasses, and, some say, prisms. Physicians at this time evinced great hostility to the wearing of glasses, and owing to the way in which they dissuaded the people from their use it was not to be expected that it would spread very rapidly. In early times men were strongly opposed to this custom, as at first glasses were ill-shaped and most disagreeably striking in appearance, and, more than this, they directed the attention to a physical disability. Patients wearing glasses were made fun of, and not altogether in a very tender manner. Their prohibitive costliness rendered the wide adoption of spectacles impossible. At the end of the sixteenth century

the price per pair, expressed in terms of present-day value, was from fifty to a hundred dollars. From this circumstance glasses which frequently had costly ornamental fittings were seldom seen, and then in the possession of wealthy people only. The history of the development and use of the concave lens is very different from that of the convex variety; it came on the scene much later. There is no mention whatever of concave glasses by the ancients, though short-sightedness was well known, not as an error of refraction, but as a weakness of the eye. One can assume with a fair degree of certainty that concave glasses came into use about the middle of the sixteenth century.—Brit. Med. Jour.

ANATOMICAL EVIDENCE IN A DIVORCE CASE.—Evidence of prime importance was recently offered in a divorce case in one of the States, which some hundreds of years ago would have been presented, if at all, by a jury of matrons, but which at this date must come from the physician or nobody. In this case the divorce had been granted to a wife, an unmarried woman having been cited as co-respondent, and the case was reopened on the plea of the lawyers for the defence that new evidence had been discovered. The new evidence proved to be a certificate from two women physicians that the alleged co-respondent was *virgo intacta*, and as this statement was absolutely incontrovertible the verdict was set aside and a new trial allowed. It is needless to dwell on the enormous importance of this kind of evidence, yet cases into which it has been introduced are very rare in modern trials. In one of Edgar Saltus' earlier romances the heroine is accused exactly as was the young woman in the case under discussion, and escapes with her reputation unspotted in the same way. At the time the novelist was accused of drawing unduly upon his lively and picturesque imagination, but it is likely that he had a genuine case or two marked for reference in the law books of some friendly learned counsellor. Those of our readers who are familiar with the less known history of the Middle Ages will recall numerous instances in which juries of matrons gave evidence on anatomical grounds, not only in the case of women, but also in that of wretched men who had been accused of *impotentia coeundi* and were obliged to controvert the accusation in the actual presence of a more or less sympathetic group of matrons or withdraw from their marital claims in confusion, and probably, we regret to state, with little sympathy from friends or public. Such juries were not abolished until close upon the epoch of the French Revolution.—American Medicine.

THERAPEUTICS IN 1653.—Nicholas Culpepper, writing from "my house on the East Side of Spittlefields neer London" in 1653, offers for the consideration of his fellow practitioners many therapeutic suggestions, and as they furnish us with a fair idea of the knowledge of therapeutics in those days, it may not be amiss to quote a few of them.

In speaking of the remedial virtues of black hellebore our author says that both Galen and Julius Alexandrinus report the roots of this plant, boiled in vinegar ("you must boyl them but very little, for the strength will soon fly off in vapor"), to be a most excellent remedy against "inveterate scabs," itch and leprosy. The plant has still further virtues for Pliny states that in the case of a beast troubled with a cough

or which has been poisoned, if a small piece of the root be inserted into a hole in the animal's ear and drawn through the opening about the same time the next day, the suffering animal will be greatly helped.

Of eringo or sea holly our authority affirms that the roots are soothing, drying and cleansing, and if bruised and applied "to the place, they help the Scrophula or disease in the throat called the King's evil; they also break up vesical stones, increase the seed and stir up lust." Couch grass is recommended on the same page with the foregoing as being of much value in disorders of the urinary system. It "gallantly" provokes urine and eases the kidneys oppressed with gravel. Licorice is also good in kidney and bladder disorders, particularly in "ulcers of the bladder, which, in my opinion, is a very difficult thing to cure, although curable."

Culpepper quotes Mizaldus as authority for his statement that "if you rub warts with the Leaves of Fig trees, and bury the Leaves in the Earth, the warts will insensibly consume." Warts treated with applications of elderberry juice also quickly disappear. A third agent for the speedy removal of warts consisted in rubbing the offending growth with a fresh piece of beef, after which process the piece of meat employed is buried. The warts are consumed as the beef rots.

He extols the virtues of Ladies Mantle, a plant very popular with him, in the following language. "Outwardly it helps wounds, reduces women's breasts that hang bagging; inwardly it helps bruises and ruptures, staves vomiting and the whites in women." The leaves of the cactus plant "expel wind, consume the seed, and cause chastity being only borne about one; they dissolve swelling of the cods, being applied to them."

In a paragraph on Chamomile, Culpepper uses his quaint phraseology to describe it as being "as gallant a medicine against stone in the bladder as grows upon the earth; you may take it inwardly, I mean the Decoction of it, being boyled in white wine, or inject the juyce of it into the bladder with a syringe." Hemlock if outwardly applied helps "Priapism or continual standing of the Yard, the Shingles, St. Anthony's Fire, or any eating ulcers."

For the benefit of those whose hair is growing thin, the source of these paragraphs recom-

mends the following: "Mice dung with the ashes of burnt Wasps and burnt Hazel nuts, made into an ointment with vinegar and Roses, do trimly deck a bald head with hairs, being anointed with it."—Urologic and Cutaneous Review.

PERICARDITIS.—Occurring in the course of rheumatic fever, pericarditis hardly adds to the immediate gravity of the condition, but as a complication of chronic renal disease pericarditis is of very serious omen; the same is true of pleurisy, and it is to be noted that each of these complications may develop without any rise of temperature, and even without pain. They are due, presumably, to a toxic state of the blood.—Hospital.

VERRUGA PERUVIANA, OROYA AND UTA.—The authors, Strong, Tyzzer, Brues, Sellards and Gastiaburu, members of the Expedition to South America from the Department of Medicine of Harvard University have reported the results of an expedition to investigate various tropical diseases occurring in South America. In Peru the diseases particularly investigated were verruga peruviana, Oroya fever and uta. The history and literature of these conditions are discussed. The general opinion among physicians of Peru was that verruga begins as a fever, lasting from 15 to 30 days, with profound anemia, prostration and a high mortality. If the patient does not die in this stage the fever begins to abate and the eruptive stage commences. It is said that if the eruption is abundant the patient is sure to recover. The authors conclude that Oroya fever and verruga are two distinct diseases. The latter is due to a transmissible virus, whereas the former is due to an organism parasitic in the red blood-corpuscles. So far this organism has not been successfully transmitted to the lower animals. It is quite evident that verruga is an entirely distinct disease and that it is not a form of Frambesia or syphilis. The inoculation period in rabbits is from 10 to 22 days; in dogs and monkeys, cutaneous and subcutaneous, and sometimes intraperitoneal, inoculation has given rise to symptoms after from 11 to 17 days. The localized reactions and lesions have sometimes resembled closely those observed in man. Wassermann reaction was negative with one exception in the cases of Oroya which were examined. Moreover no fixation of complement can be ob-

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tained when a specific antigen is substituted for the antigen used in the routine Wassermann reaction. The patients were vaccinated against verruga and it seems hopeful that a successful means of vaccination against verruga may be obtained. The authors were able to show that uta is due to a species of *Leishmania*, the flagellate stage of the organism was obtained and animals have been successfully inoculated from a human case. —*Jour. A. M. A.*, Nov. 8, 1913.

THE PRICE HE PAID.

I said I would have my fling,
And do what a young may;
And I didn't believe a thing
That the parsons have to say.
I didn't believe in a God
That gives us blood like fire,
Then flings us into hell because
We answer the call of desire.

And I said: "Religion is rot,
And the laws of the world are nil:
For the bad man is he who is caught
And cannot pay his bill,
And there is no place called hell,
And heaven is only a truth
When a man has his way with a maid
In the fresh, keen hour of youth.

And money can buy us grace,
If it rings on the plate of the church;
And money can neatly erase
Each sign of a sinful smirch."
For I saw men everywhere,
Hotfooting the road of vice;
And women and preachers smiled on them
As long as they paid the price.

So I had my joy of life—
I went the pace of the town;
And then I took me a wife
And started to settle down.
I had gold enough and to spare
For all the simple joys
That belong with a house and a home
And a brood of girls and boys.

I married a girl with health
And virtue and spotless fame;
I gave in exchange my wealth
And a proud old family name.
And I gave her the love of a heart
Grown sated and sick of sin!
My deal with the devil was all cleaned up,
And the last bill handed in.

She was going to bring me a child,
And when in labor she cried,
With love and fear I was wild—
But now I wish she had died.
For the son she bore me was blind
And crippled and weak and sore,
And his mother was left a wreck—
It was so she settled my score.

I said I must have my fling,
And they knew the path I would go;
Yet no one told me a thing
Of what I needed to know.
Folks talk too much of a soul
From heavenly joys debarred,
And not enough of the babes unborn.
By the sins of their fathers scarred.
—Ella Wheeler Wilcox.

PHYSICAL DISCONTENT.—Among the innumerable, incomprehensible things that surround the earthly individual during his comparatively short sojourn here as a slightly intelligent being is the physical as well as the mental unrest and discontent.

Even as the mind of man yearns for a solution of scientific problems of which his limited physical senses give him but a faint and incomplete realization, so the material body turns hither and thither in a seeming vain search for physical content.

An all-wise source of creative power, impelled by a purpose that is not knowable to us, has implanted in our machine-like bodies strange and almost irresistible tendencies that point with absolute certainty toward some ultimate and desirable end.

The discontent of mind that stimulates ambition, the discontent of soul that yearns for explaining knowledge, the discontent of thought that tries to reason out the destiny of the ego of man, all have their prototypes in physical habits of strange import. The physical longing for the effects of alcohol, tobacco and cocaine is as mysterious as it is hellward in its course.

That divine implanted passion of sex, the purpose of which is no doubt to offset the wasteful loss of human life, only intensifies the desire of deep-thinking men to know what is the evident very important end of our presence here. And, strange to state, we drift along joyfully ignorant and unmindful of the great ultimate purpose, selfishly feasting upon the bait that is skillfully placed where it will successfully lead us on. The physical pleasure and satisfaction of sexual intercourse, however, is not of itself sufficient as an impelling reward to maintain the species at a safe level of numerical strength. There exists that strange impelling tendency that drives man to do almost superhuman deeds, to slay his fellow, to destroy his object in his wild desire, and even to destroy himself when his purpose seems hopeless. From the standpoint of human reason these terrible impulses can find no adequate explanation. It is that physical discontent which forces onward the human machine toward the accomplishment of a God-known and yet human unthinkable end.

But the purposeful object of common existence is just as strange. The small boy who asked his mother "Why is a bed bug?" has never yet been satisfactorily informed as to the reason for its existence. The savant who delves into the thin skin of knowledge soon realizes his inability to go deeper. The knowable is merely the faintest hint of an undoubted incomprehensible expanse of fact. The five avenues of receiving knowledge into the human cognizance are strangely and unchangeably limited by an inflexible law. The evidence of design marks the existence of a designer, and yet the knowledge of that Great Designer can only be inferred by us from His works. The so-called subconscious conception is nothing but an unsatisfied hunger after the unknowable. It is hope mis-named fact.

When the poet Longfellow asked his Irish gardener as to his idea of infinite heavenward space the reply was: "The end of space, be dad, is a big stone wall." And when asked what might be found on the other side of the stone wall, he replied: "Nothin', be dad!" Foolish as this reply may seem, the wisdom of the ages can give no more satisfactory answer. The vagaries of the sex instinct are as incomprehensible. I know of no way to convey my idea so completely as to speak in a hypothetical way. Turn a fair-

sized calf into fenced pasture containing good rich grass, and he will soon tire of the generous supply of food legitimately supplied and wander around in discontent looking for an opportunity to get some of the same kind of grass that is just outside the fence. He will butt against that fence, endeavor to crawl under or jump over, devise many clever schemes to retain the credit of staying in the pasture while he feasts on the grass outside, and yet we can see absolutely no reason for his discontent. So it is with misunderstood man. In the pleasant pasture of conjugal bliss, surrounded by the matrimonial fence, he is not often perfectly satisfied. He peeks through the fence at some plump or gracefully thin blade of grass, and at once is filled with physical discontent. He braves consequences worthy of a better cause, and invents clever schemes that might result in untold happiness if used along other lines, and barter future prospects of all human success, trying to get the few halo-surrounded blades of grass on the outside of that fence. And when he breaks through and gets what he has so strenuously been striving for, what has he got? What is his reward? What follows?

It will be a sad-looking calf. In all probability there will be bruises on its head from clubs, a sorrowful heart from disappointments, and sores all over its body from specific effects on the blood. All the other calves have no difficulty in seeing the misfortune of this calf, yet the foolish ones continue to try with all their might to get through that same fence.—A. D. Hard, in *The Medical Times*.

GOITRE.—A certain number of cases of simple goitre undoubtedly improve under thyroid extract; one grain two or three times daily is a suitable dose in which to commence the administration.—Hospital.

A LARGE BRAIN.—Prince Katsura's big brain is occasioning a great deal of comment, although there are thousands of unknown Japanese with brains just as big if not bigger. As long ago as 1903 statistics of Japanese brain weights were published in the *Sei-I-Kwan Medical Journal of Tokio* by the anatomist Taguchi, and it was found that while the vast majority were near an average which was less than the average German brain, the extreme variations on each side were not quite as numerous as in peoples who had been under civilized influences longer. That is, in a savage state where all men have the same employment the brains vary but little from the average, but with the growth of a complex civilization, men who would perish in savage life can find some way of making a living. Anthropologists have long known of the law of the increasing variation of brain weights. The Japanese have not been under this selection as long as other races, and consequently do not have as many big brains as Germany, say, and the small sizes are more numerous and more diminutive. The size of the brain, by the way, gives no indication of the kind of mind, although great men as a rule do have bigger brains than the obscure. Prince Katsura's brain therefore is not an indication of Japanese national intelligence, as he is merely one of the variants of a rather low average. It no doubt accounts for his great ability, though other men with big ones have not done anything remarkable. We must make allowance for the fact that it was weighted in the fresh wet state and when dehydrated it will approach

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the weight of many another great man's which has been weighed only after preservation in alcohol or merely calculated from the skull capacity. Still, Spitzka puts it 16 in his list of 108 eminent men, and it might go much lower if we knew more of the brains of the great.—*American Medicine*.

APPENDICITIS DON'TS.—Don't give too favorable a prognosis even if the case seems to be a mild one.

Don't give any food, or even water per os.

Don't apply mustard, hot water, turpentine, or anything that will affect the condition of the skin.

Don't give anything that will increase peristalsis, or any drug that will paralyze the nervous tone, prevent the passage of infectious discharge, or mask the symptoms in any way.

Don't allow your patient to move about in bed, or to change position frequently. Such movements favor perforation.

Don't operate hastily, but, on the other hand, don't hesitate to do so if the symptoms justify it; too much delay is as dangerous as undue haste.

Don't rely on medicine if *Blumberg's sign* is present, but don't diagnose appendicitis if pressure over the descending colon produces no pain in the right iliac fossa.

Don't rely upon *Blumberg's sign* alone, it is present in all cases of inflammation of the peritoneum.

Don't forget that peritoneal inflammation and abscess formations are early features in children, who need operative treatment quite as often as adults.

Don't forget that appendicitis may be mistaken for typhoid fever, renal colic, tubercular peritonitis, extra-uterine pregnancy, intestinal obstruction, cholecystitis, peri-nephritis abscess, cæcal carcinoma, hip joint disease, hypochondriasis and hysteria.

Don't rely upon medical treatment when you find:

- (a) There have been previous attacks
 - (b) The premonitory symptoms are severe.
 - (c) The mononuclear leucocyte count exceeds 30%.
 - (d) There is sudden relief from pain.
 - (e) The temperature keeps rising.
 - (f) There are local signs of peritonitis.
 - (g) There is a tumor in the right iliac fossa.
- Some Don'ts: Medical and Surgical.

GASTRIC ULCER.—Any young woman who suffers from pain and vomiting after food unrelieved by careful dieting and free doses of bismuth subnitrate, ought to be regarded as, at least probably, the victim of gastric ulcer, and should be treated by rest in bed, etc.—Hospital.

EVOLUTION OF THE THYROID GLAND.—The thyroid, while it does not play an essential role in our conception of vertebrates, is, nevertheless, one of their most constant and characteristic structures—existing in the same anatomical form from the adult cyclostomes throughout all the fishes, amphibians, reptiles, birds and mammals. Marine shows that morphologically the endostyles are fundamentally identical in all. Cyclostomes, fishes, amphibians, reptiles, birds and mammals are the only classes of animals which possess ductless thyroids, the follicles of which are anatomically identical in all. The most important of the epithelia concerned in the formation of the ductless follicles is that form which is continuous with the lining epithelium of the duct and pharyngeal grooves. Studies in the embryology of the ductless thyroid have shown that, in fishes, amphibians, reptiles and birds, the thyroid arises solely from a median, single, ventral downgrowth of the pharyngeal endoderm in or slightly anterior to the first aortic arch. In mammals this symmetry of development was believed to be departed from through the discovery by Stieda of the so-called "lateral thyroid anlagen" from the fourth or, more accurately in man, the rudimentary fifth gill pouch, but the work in the embryology, in the pathology and in the developmental defects of the thyroid during recent years has shown that these lateral bodies which in mammals only become imbedded in the lateral thyroid lobes take no part in the formation of thyroid gland tissue. This solution of the origin of the mammalian thyroid from the single median anlage harmonizes the location and development of the endostyle with the location and development of the ductless thyroid. The thyroid mechanism, therefore, irrespective of the possible phylogenetic relationship to the chordate stem of the several classes of animals concerned, appears to have been evolved through a direct line of descent from the tunicates through the amphioxus, fishes, amphibians, reptiles, birds and mammals. The meager evidence of the physiology in both the endostyle and the ductless thyroid gives no suggestion of an inter-relationship or function. Primarily the thyroid is a part of the alimentary tract and in its endostylar form is a digestive gland of great importance through its probable external secretion. In its ductless form it is only the atrophic remnant of its ances-

tor which, while it has suffered a corresponding distortion of function, still profoundly influences the animal's nutrition through the effect of its probable internal secretion.—Internat. Abstracts of Surg., September, 1913.

CANCER OF THE STOMACH.—If a test meal shows HCl in good quantity this is against a diagnosis of cancer, while the absence of HCl is decidedly in favor of cancer. In 80 to 90 per cent. of cases of gastric cancer HCl is either absent or present in small quantity only.—Hospital.

PHYSICIANS AND THE PATIENT'S TEETH.—Practitioners are now sufficiently aware of the importance of the condition of the teeth in making a diagnosis and in indicating treatment and no longer consider it beneath their dignity to advise a visit to the dentist when well marked caries or pyorrhea is discovered. Sometimes, however, the patient will ask directly what tooth powder the doctor recommends, and it is here that we believe the answer is often insufficiently considered and unwise. "Any good powder" is the usual reply, and is inevitably construed to mean "any powder the druggist hands out, or any you like the flavor of." As a matter of fact, the average tooth powder has very little cleansing power and resembles greatly nearly every other powder on the market. The combination of soft, pappy food, mucus and salts that forms on the teeth, soon to harden into tartar, is extremely difficult to remove and demands a true detergent that will efficiently scrape off the mucoid mass, together with a fairly firm brush and much patience. There should be some such powder on the mar-

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ket, although we confess we do not know of any, and it is the duty of the physician to find it and recommend it to the exclusion of all others. If the town's resources fail to furnish a powder of this kind, let doctor and dentist put their heads together and evolve a truly cleansing dentifrice. It is shocking to learn that the majority of men over forty years of age suffer from pyorrhea, a disease now suspected of being a potent cause of intestinal toxemia. Efficient oral cleanliness in youth with proper brush and suitable powder ought to do away with this extraordinary and unpleasant phenomena.—American Medicine.

CHOREA.—It should be remembered that chorea sometimes expresses itself, not in the form of muscular spasm and inco-ordination, but in the form of muscular weakness or paralysis. This may be unilateral and unless the point is borne in mind a mistake in diagnosis may readily occur.—Hospital.

REST IN TUBERCULOSIS.—J. W. Flinn, of Prescott, Ariz., says that, in spite of the work of Hilton, Mitchell, etc., physicians have been rather slow to appreciate what rest can do to cure and prevent disease. With the exception of a little work of Norman Bridge and a few scattered papers by others, practically nothing has been written on the important subject of rest in tuberculosis. Though Bridge was unfortunately content with mechanical measures, his views were a decidedly marked step in advance, and the revival of the operation of artificial pneumothorax, though its special value is in only a limited field, may help to reach the profession the importance of rest to the lung. Flinn would prescribe it for every tuberculosis case; absolute rest in bed for at least a month and in most cases for two months, whether there is fever or not. It should be prescribed in definite quantities guided by the condition of the patient throughout the disease, and when a certain grade of rest does not bring the maximum temperature below 100 F. in two weeks, the next higher grade should be tried. To the objection that each case should be treated individually, he answers that the power to individualize comes only with experience and that the inexperienced should follow general rules and make exceptions only when benefit is not derived. Rest in bed is also a valuable remedy after the lung lesions have become quiescent and the patient is taking active exercise. Two hours absolute rest in bed should be given each patient each afternoon until he returns to his former work. After that, one hour's rest after the noon day meal should be spent on his back, and Sundays should be spent in bed for some months. In many cases a day's rest in the middle of the week is necessary to enable him to attend properly to his work the remaining five days. In spite of all that has been done with other special treatments, the profession should never forget the fact that fresh air, good food and rest are still the essentials in the management of pulmonary tuberculosis.—Jour. A. M. A., Aug. 16, 1913.

EXPERIMENTAL LIVER CIRRHOSIS.—A. L. Grover, Iowa City, after briefly reviewing the literature of experimental cirrhosis of the liver which has demonstrated that the toxic and infectious types are excited primarily by repeated injury to the liver cells, reports his own experiments, undertaken to confirm previous work, and if possible to find some method by which the part played by alcohol in producing liver cirrhosis

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could be demonstrated. His results appear to confirm those of previous investigators as to the toxic types of cirrhosis and the infectious when combined with the toxic. As regards the obstructive biliary types, they were in the main also the same. Two experiments were made on rabbits by giving them small doses of alcohol by the mouth over a considerable period of time, thus attempting to reproduce the conditions like those of a chronic drinker. The first experiment was at least suggestive of the cirrhosis production of alcohol and he thinks that with the same technic others will obtain the same result. The second rabbit treated with alcohol was at the end of the third month inoculated with a culture of colon bacillus in the ear vein. At the end of four months of treatment the liver showed incipient cirrhosis, though less than in the first rabbit, the bile duct had not yet undergone any change, thus showing that the bile duct proliferation is a later process than the proliferation of connective tissue. The colon bacilli seem to have no influence, thus acting contrary to the results obtained in chloroform narcosis.—*Jour. A. M. A.*, Aug. 16, 1913.

NEW MONTEFIORE HOME DEDICATED.—The new \$2,000,000 Montefiore Home for Chronic Invalids was dedicated with impressive ceremonies on November 30, 1913. The principal address was made by Mr. Jacob H. Schiff. There are seven buildings in the new hospital, which will accommodate about 450 patients, and the buildings are so laid out that the capacity can be readily increased. The construction throughout and the equipment conform to the highest present standard. The cost of maintaining the home is set at \$300,000 a year. Seventy-five nurses are employed in the hospital, and there are eight interne physicians and forty visiting and consulting physicians and surgeons. Dr. Siegfried Wachsmann is the medical director and superintendent.

IRREDUCIBLE HAEMORRHOIDS.—Where there is difficulty in pushing hæmorrhoids back within the bowel, and consequent danger of strangulation, the application of a solution of adrenaline (1 in 2,000 to 1 in 1,000) may prove of great value.—*Hospital*.

MALIGNANT ENDOCARDITIS.—Bacteriological examination of the blood is often negative in this disease, and in these circumstances it is wise to use injections of both anti-streptococcic and anti-staphylococcic serum.

ANESTHESIA NUMBER.—The editors of the "Annals of Surgery" are to be complimented on the excellence of the December issue, which is a special anesthesia number, and contains some of the most important papers that have ever been presented on this subject. In getting out this extraordinary number the publishers have not sacrificed any space usually given up to the many valuable papers on surgery which appear in this publication. Nor have they spared any pains or expense to make this a banner issue. There are 265 pages of solid reading matter, and in addition, many handsome illustrations. Among the contributors to this special number we find many noted names: J. T. Gwatmey, Karl Connell, C. G. Parsons, W. F. Honan, O. J. Cunningham, H. H. Janeway, F. J. Cotton, W. S. Bainbridge, H. E. Mereness, Jr., F. H. McMeelhan, etc.

BISMUTH SUBNITRATE.—It is a mistake to prescribe the salts of bismuth in mixture with mucilage of tragacanth or other suspending agent. They should be given in cachets or as a powder placed on the tongue; if it is desired to order a mixture the bismuth salt should be prescribed with compound infusion of orange and a "shake the bottle" label be placed on the bottle.—*Hospital*.

SPECIAL FRACTURE NUMBER.—The "American Journal of Surgery" will present in January an issue of their journal devoted exclusively to fractures and their treatment. The following subjects will be presented by acknowledged authorities in their special branch of surgical work: "Astragalus Injuries," by F. J. Cotton, M. D., Boston, Mass.; "Diagnosis of Fracture," by Lewis A. Stimson, M. D., New York; "Position in the Treatment of Juxta Epiphyseal Fractures at the Hip and Shoulder," by Fred. Albee, M. D., New York; "A Splint for Maintaining Nail Extension During Transport," by John C. A. Gerster, M. D., New York; "Fracture of the Skull: Roentgen Ray as an Aid in Its Diagnosis," by W. H. Lockett, M. D., New York; "Vicious Union," by James K. Young, M. D., Philadelphia; "The Immediate and Remote Results of Fractures of the Skull and Spine," by Charles Elsberg, M. D., New York; "Conservation in the Treatment of Fractures," by William L. Estes, M. D., So. Bethlehem, Pa.; "Some Phases of Fracture Treatment as Based on Hospital Experience," by E. S. Van Duyn, M. D., Syracuse, N. Y.; "The Treatment of Fractures," by E. P. Magruder, M. D., Washington, D. C.

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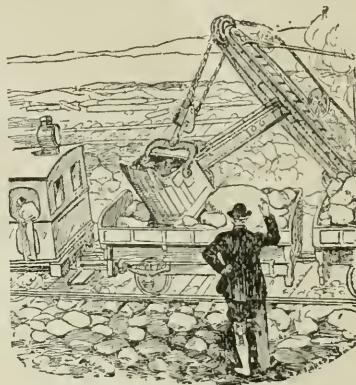
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STEAM SHOVEL AT WORK

THE "GREATER" FIELD OF ATOPHAN.—The striking and therapeutically so valuable selective action of Atophan and its tasteless derivative Novatophan upon the uric acid output of the organism and the regulation of the purin metabolism has been the subject of an already long list of publications, chiefly from the pen of European clinicians and pharmacologists.

More recently, however, American scientific investigators have been attracted to the study of these most interesting substances and have in every way confirmed the earlier findings.

Prof. Otto Folin and Dr. Henry Lyman of the Biochemical Laboratory of Harvard Medical School, Boston, have contributed an article "On the Influence of Phenylquinolin Carboxylic Acid (atophan) on the Uric Acid Elimination" to the "Journal of Pharmacology and Experimental Therapeutics," July, 1913, in which, for the first time the effect of atophan medication upon the uric acid of the blood is made the subject of thorough investigation. This has been made possible only by the introduction of the new and very exact colorimetric uric acid test of Folin and Denis. In every one of the six cases of gout in which atophan was given under purin-free diet, the medication led to a pronounced increase in the uric acid elimination and a corresponding reduction of the uric acid content of the blood.

Prof. Howard D. Haskins of the Physiologic and Biochemical Laboratory, Western Reserve Medical College, Cleveland, reports in the September issue of the same publication under the title of "The Effect of Atophan and Novatophan on the Endogenous Uric Acid Excretion of Normal Men," the results of his experiments

with twenty-one medical students who were apparently in good health and who had been kept on a purin-free diet for at least one week before atophan or novatophan were administered. Sixteen of these showed an increase of urinary uric acid excretion of over 200 milligrams, four, a noticeable but lesser figure and one, no increase at all. The author concludes that the action of atophan does not merely consist in stimulating the kidneys to abstract from the blood a greater quantity of uric acid than they otherwise would, but that the main effect of the drug is to drain uric acid out of the blood, leaving the uric acid content of the latter subnormal.

While both these investigations and still further scientific evidence to the superior qualifications of atophan and its derivative as therapeutic agents in gout and other manifestations of the uric acid diathesis, it should not be forgotten that entirely independent of their uric acid "mobilizing" action, these substances possess marked analgesic, antipyretic as well as powerful anti-phlogistic effect. This has been very conclusively demonstrated clinically by Prof. Klemperer of Berlin, who disposes of an experience covering the use of approximately 20,000 fifteen-grain doses in nearly 300 cases of acute polyarthritis treated at the Municipal Hospital, Moabit during the past two years. (Therapie der Gegenwart, June, 1913).

A most convincing demonstration of the powerful antiphlogistic effect of atophan and its derivative has been furnished by Professors E. Starkenstein and W. Wiechowsky of the University of Prague in the entire suppression, in guinea pigs treated with atophan, of the violent chemosis following ocular instillations of essen-

tial oil of mustard (Prager Med. Woch., Jan. 16, 1913).

Atophan and novatophan will, therefore, also be found of the greatest value in lumbago, muscular rheumatism, neuritis, sciatica, hemicrania, migraine, non-specific iritis, episcleritis, otosclerosis and generally in all painful inflammatory conditions whether uratic or non-uratic in character. (Schering & Glatz, New York.)

SKIN RASHES IN SEPTICAEMIA.—Patches of an erythematous skin rash, together with high temperatures, may for a time be the only evidences of septicæmia. It may be difficult at first to distinguish such a condition from scarlet fever, and the position is not eased when, as sometimes happens, well-marked desquamation occurs.—Hospital.

THE CONSTANT NEED FOR AN EFFECTIVE TONIC.—It is a fact not generally recognized, but very true, nevertheless, that the class of remedies most frequently used by the practitioner is that made up of the tonics or reconstructives. This is not so surprising, however, when we stop to consider that the great bulk of ailments which lead people to consult their physician, have their origin in some depression, derangement or "falling off" in bodily vitality. Naturally, in instituting treatment for such afflictions, the practitioner seeks to stimulate faltering functions, increase the activity of weakened organs and restore all the energy he can to the whole organism. To do all this and produce permanent, not temporary, results, requires a remedy that possesses beyond all question tonic and reconstructive properties.

Among those that have been found especially capable of up-building the body and accomplishing changes permanent in character, Gray's Glycerine Tonic Comp. has long stood first. The reason for this popularity is found at once in the remarkable efficiency of this product, for when properly administered it is a dependable means of effecting prompt and substantial results in atonic indigestion, gastro-intestinal catarrh, chronic bronchitis, incipient tuberculosis, neuras-

thenia, nervous disorders in general, and wherever an efficient restorative and reconstructive is needed. For over 16 years "Gray's" has been at the command of the profession, and countless physicians derive genuine satisfaction from its use because they have found it one of the few remedies that measures up to all that the word tonic means in modern therapeutics.—(Purdue Frederick Co.)

ANNOUNCEMENT BY THE H. K. MULFORD CO.—Dr. W. A. Puckner, director of the chemical laboratory of the American Medical Association, investigated a number of the products furnished by twenty different pharmaceutical manufacturers and the degree of accuracy attained by each house was published in the Journal of the American Medical Association, September 13, 1913.

The results are given in detail and make it possible to summarize or classify them in various ways. For example, the average strength of all the preparations made by each house may be calculated. An objection to this method, however, lies in the fact that the preparations above strength, of any one house, might exactly counterbalance the ones under strength and the house receive thereby a perfect mark.

A more accurate method consists in calculating the average deflection from normal of the preparations of each house, and rank the houses in the contest in the order in which the average deflection is the least.

A third method would consist merely in stating the highest and lowest deviation from standard found in the products of each house.

By whatever method the results are summarized, the H. K. Mulford Company heads the list for accuracy of products.

The preparations examined, namely, hypodermic tablets morphine sulphate, tablets potassium iodide, solution of potassium arsenite, fluid extract of hydrastis and fluid extract of digitalis, should be divided in summarizing results, into two classes. The first four mentioned are amenable to exact chemical assay and it is possible, therefore, to determine within a fraction of one per cent. the exact deviation from standard, or

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AN IMPORTANT REPORT

By Professor W. A. PUCKNER

Secretary of the Council on Pharmacy and Chemistry
American Medical Association

In the Journal of the American Medical Association, September 13, 1913, Professor Puckner reports the result of the investigation of products of a number of pharmaceutical houses. In this report are embodied the results obtained by Dr. R. A. Hatcher, of Cornell University Medical School, who made a special examination of the various digitalis products of these pharmaceutical houses, demonstrating the following

FACTS

First.—That commercial digitalis preparations vary most widely in activity.

Second.—That Mulford Digitalis, the most active, is four times as active as the weakest.

Third.—That the digitalis prepared by other firms, assumed to be physiologically assayed, showed a variation of more than 100 per cent. in strength.

Fourth.—That the digitalis next in strength to the Mulford preparation, was only 65 per cent., and the weakest, 29 per cent. in activity.

CONCLUSIONS

While there is no official standard of activity for digitalis, Dr. Hatcher adopted the Mulford Fluidextract Digitalis as the standard of comparison, because its activity was that of a good digitalis. The report proves the activity and reliability of the Mulford Digitalis, and coincides with the former report made by the United States Bureau of Hygiene, tabulated in Bulletin No. 48, December, 1908, by Edmunds and Hale, relating to the Mulford Fat-free Tincture of Digitalis—*Digital.*

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conversely, approach to perfection of these preparations. Their standards are definitely fixed, either by the Pharmacopeia or by the manufacturer's claim—100 per cent. of the claimed strength being the target at which each manufacturer aims.

The other preparation, however, namely, fluid extract digitalis, is one for which no definite standard of strength has been fixed. The preparation is official but no assay processes have been provided by the Pharmacopeia, so that a preparation made in strict accordance with the U. S. P. directions may vary enormously in activity. A limited number only of the houses chosen for this contest make any attempt to standardize digitalis preparations. A few, however, have adopted physiologic methods of assay in an attempt to put on the market preparations of uniform strength.

Even in the absence of a fixed and official standard of strength, it is obvious that a fluid extract of digitalis should have represented in each cubic centimeter, one gramme of a good quality of drug.

Dr. R. A. Hatcher, of Cornell University Medical School, who examined the digitalis samples for Dr. Puckner, and made a special study of this drug for a number of years, is the inventor of the process by which these samples were examined, and is fully competent, therefore, to express an opinion as to whether a preparation does represent a digitalis drug of good quality.

Dr. Hatcher's results with the nineteen fluid extracts examined in this contest forced him to the conclusion that *the fluid extract of the H. K. Mulford Company fully represented a digitalis drug of good quality and that the next in value*

only possessed 65.8 per cent. of the strength of the Mulford preparation.

The H. K. Mulford Company Fluid Extract Digitalis was therefore taken as the standard, or 100 per cent. The other 18 preparations ranged from 65.8 per cent. down to a minimum of 29.25 per cent.

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To the credit of all of the firms, Dr. Puckner states that there was found no evidence of wilful sophistication or adulteration in any product examined. He believes that none of the houses deliberately adulterate or sophisticate their standard drugs, but that the products of many of them are made by those "who are less competent and less skilled" than the others. It is the more complimentary to the H. K. Mulford Company, therefore, that it should attain the first place, with those who are doing their best to furnish standard articles. It is an emphatic endorsement of the competence and skill shown by the H. K. Mulford Company, and products of their manufacture.

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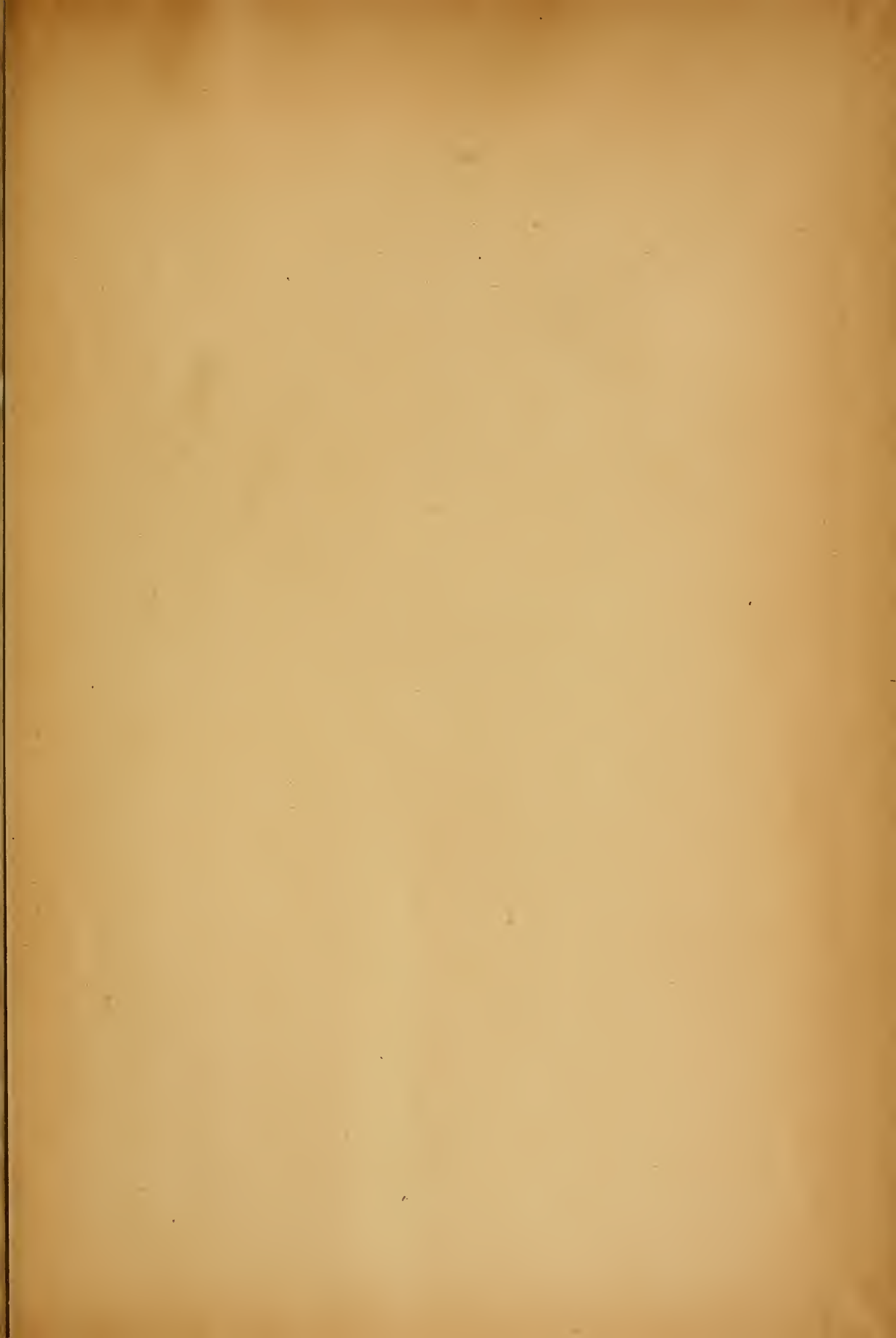
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